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A GENERIC REVISION OF THE SPIRANTHINAE

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DEDICATED
TO THE MEMORY OF
GUIDO FREDERICO JOÃO PABST
1914 – 1980

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IN THE BOTANICAL MUSEUM, HARVARD
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OF HERBARIUM BRADEANUM, RIO DE
JANEIRO, WHO WAS ASSOCIATED WITH
THE EARLY PHASE OF THE INVESTIGA-
TIONS OF THE SPIRANTHINAE COMPLEX.

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INTRODUCTION

The last review of the *Spiranthinae* at the generic level was published by Schlechter in 1920 (Beih. Bot. Centralbl. 37, pt. 2: 317–454). At that time Schlechter gave an extensive historical background of the development of the various generic boundaries, including those which he himself set up as new. Consequently these details are not repeated here. Schlechter summarized his findings in a key accounting for 24 genera which he grouped on the basis of the structure of the rostellum and viscidium into four separate alliances. His new treatment, at first, was well received, but the enthusiasm it generated soon started to wither, especially along the American frontier, as the assignment of the various species underwent scrupulous evaluations. Perhaps the most convincing effort to discredit Schlechter's work was published by Ames in 1922 (Orchid. 7: 127–129) where he argued a seemingly contradicting evidence found in *Spiranthes novaezealandiae*. The flowers in this latter species do not exhibit a well-defined rostellum, yet Schlechter included it in the genus *Spiranthes*, which is characterized, among others, by a bifid or bidentate, sharp-pointed rostellum. Of course, in 1922, the taxonomists were not used to thinking in terms of autogamous populations of which *S. novaezealandiae* is a clear-cut representative. As a matter of fact, autogamy is a very common phenomenon in the entire *Spiranthes*-related complex. The recently described *S. hongkongensis* is another typical example.

Admittedly I was also supporting Ames' approach, until I had a chance to investigate the whole complex on my own. What truly disturbed me, however, was the fact that Schlechter did not account for a number of described species, including some of his own, on the one hand, while on the other hand due to erroneous observations he assigned a number of species to the wrong genera. One of these species was *Spiranthes obliqua* J. J. Sm. from Java. It was discovered in the Bogor Botanical Garden associated with *Carludovica* sp. J. J. Smith published excellent drawings of the floral details, all of which clearly have shown that this particular binomial is not referable to the genus *Spiranthes* in the strict sense. Until recently nothing more was

known about that species. In 1976, it was described as *Manniella hongkongensis* and again in 1978 as *Pelexia Hameri*. Since that time I have seen additional material from Ceylon and from Guadeloupe in the West Indies. In all instances the plants were gathered in Botanical Gardens. Obviously a *Pelexia* from Java was too much for Schlechter in 1920!

Stenorrhynchus cinnabarinus, a common Mexican plant, is another case based on wrong observations. The genus *Stenorrhynchus* (correct spelling) was always characterized among others by the rigid, sharp-pointed rostellum. Yet, *S. cinnabarinus* has a soft, pliable, linear-oblong, blunt rostellum. Today this particular character, together with other associated criteria, as will be shown later, marks *S. cinnabarinus* as being amply distinct from *Stenorrhynchus*.

In 1920, when Schlechter published his revision, he accounted for 280 species in 24 genera. Of these genera 16 were new and 7 monotypic. The revision here accounts for 390 species in 44 genera. Of these genera 14 are new and 13 monotypic.

It has been said many times that a genus is not good, unless one can separate it from other genera through satisfactory key characters. At the beginning I did attempt to expand the key published by Schlechter, but after a third attempt I had to abandon the idea. The key to the genera published here is based on an entirely new approach which underwent no less than nine revisions. The structure of the rostellum is, of course, still a very important character, but no longer is used here to separate groups of genera. Perhaps one of the most unique divisional characters, which until now was totally overlooked, is the "terminal" versus "anterior" stigmata. Incidentally, both types of stigmata were included formerly in the genus *Stenorrhynchus*. The fusion of the dorsal sepal with the lateral sepals to form a sepaline tube or nectary is another important character; so are the presence or absence of a distinct column-foot and the pliable or rigid texture of the rostellum.

In line with the requirements of the International Code of Botanical Nomenclature, every generic name, whether accepted or in synonymy, has been typified either for the first time or the previous typifications are cited. This method, as it were,

automatically sets the limits of the diversity which logistically can be expected to occur within a genus.

When Schlechter described the limits of his subtribe *Spiranthinae*, he characterized the group as having fasciculate roots, basal leaves, vaginate scape and resupinate flowers. It is true that most of the species fall within this broad outline. A decumbent or a short rhizome is present, however, in the genera *Helonoma* and *Hapalorchis*, as well as in a number of species of the genera *Pelexia* and *Sarcoglottis*. Non-resupinate flowers are known to occur randomly in the genera *Beadlea*, *Hapalorchis*, *Pseudocranichis* and *Nothosteale*.

This last mentioned generic name stands for an unusual and rare plant from Brazil. The column is represented by an incomplete fusion of the filament of the stamen and the style with the terminal, confluent stigmata. The pollinia with distinct caudicles are attached to a small, round viscidium.

Among the genera with terminal stigmata, *Sacoila* must be singled out. This genus originally was established by Rafinesque in 1837, as one of his many routine segregates of the then all-encompassing *Neottia*. It is noteworthy that not even Schlechter noticed the remarkable structural differences between the plants of *Sacoila* and *Stenorrhynchos*. In the former genus the flowers have terminal stigmata, long, decurrent column-foot with free tips and the lateral sepals are spur-like; in the latter genus the flowers, however, are noted for their anterior stigmata, for the oblique base of the column is without a distinct foot, and the lateral sepals are never spur-like.

For a long time I was aware of the bizarre structure of the flowers which were described as *Cranichis thysanochila*. It has been assigned to *Cranichis* most probably because of the non-resupinate flowers. The resemblance, however, ends here. The peculiar tear-drop-like column has a substipitate, oblique base rapidly expanding upwards, truncate at the top. The two stigmata are separate, saddle-shaped on the sides of the truncate rostellum. In that particular aspect, the column is reminiscent of the genus *Altensteinia*. The rest of the floral structures as well as the entire plant is clearly that of the *Spiranthinae*. Hence, I propose the name *Pseudocranichis*. Plants of this unusual genus

were already known to Reichenbach, who also regarded them as a representative of a new genus.

I consider the position of the genus *Manniella* to be among the *Spiranthinae*. Reichenbach's original statement that the column has two auricles at the apex is based on a wrong observation. The clinandrium, *i.e.*, the anther bed, in *Maniella* consists of a square, basket-like structure with the erect sides free from one another and from the sides of the stigmatic cavity; the bottom of the clinandrium is flat, not infundibuliform as in the rest of the *Spiranthinae*. Apart from this unique feature, *Maniella* agrees with the remainder of the *Spiranthinae*.

When I described *Manniella americana* in 1962, I did it on account of the great similarity in the structure of the sepaline tube found in this species and in *M. Gustavi*, the type of the genus from West Africa. Since that time I have received good material of both species which has enabled me to clarify the status of *M. americana*. The plants are native to the Guyana Highlands, and commonly autogamous. They have a short, decumbent rhizome, and an infundibuliform clinandrium. *Spiranthes bifida*, also having the same distribution, appears to be congeneric. These two species together comprise now the genus *Helonoma*. Incidentally *Spiranthes bifida* is based on specimens with true peloric flowers in addition to its being autogamous.

Because of the manner in which Schlechter circumscribed his genus *Deiregyne*, it must be typified by *D. chloreaeformis*. The other species included in it by him are now transferred either to *Aulosepalum* or to *Gularia*. Pamela Balogh's contention that they are all referable to *Schiedeella* (*Orquidea*, Mex. 8: 37-40, 1981), presumably because they all have translucent, chartaceous sheaths covering the scapes, suggests her strong preference for gross appearances over diagnostic floral details. *Deiregyne* at a future time may be divided into two genera on account of the nature of the rostellum. The group containing the type of the genus has a blunt rostellum with revolute sides; the other group is characterized by an acuminate rostellum without revolute sides.

Since *Stenorrhynchos* is typified by the widespread *S. speciosum*, a number of south Brazilian elements no longer can be

retained in the genus. For those plants with a dense, sceptre-like inflorescence, more or less sigmoid lip and laterally toothed rostellum the name *Skeptrostachys* is proposed here.

Monotypic genera are always frowned upon by botanists, and are often regarded as by-products of extreme splittings. Personally I look upon them in the orchids as inevitable, peripheral products of anagenesis, *i.e.*, the evolutionary refinements within a main phylogenetic branch of the family, in this case, the Neottioideae. Dressler recently elevated the whole *Spiranthes* complex to a separate subfamily, *Spiranthoideae* (*Selbyana* 5: 197–206, Dec. 1979). His new system of classification—so aptly summed up by Schultes in his review in *The American Orchid Society Bulletin*—is remarkable, among others, in combining heterogeneous, diverse elements into NEW SUBFAMILIES, often with old names, such as *Neottia* and *Orchis* into *Orchidoideae*, to mention but one. Dressler summarized his new system in a diagrammatic presentation (p. 203, fig. 3), which, indeed, is reminiscent of a supernova, where the fragments of the original components are thrown out and randomly combined to give birth to a NEW CREATION.

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DESCRIPTIONS OF NEW SPECIES

Deiregyne confusa Garay, sp. nov.

Plantae terrestres, elatae, usque ad 50 cm. altae; radicibus fasciculatis, tuberosis, breviter stipitatis, pubescentibus, crassis; foliis sub anthesin vulgo absentibus, anguste lanceolatis, acutis vel subacuminatis, basi cuneatis, subsessilibus vulgo plurimis, usque ad 20 cm. longis, 2 cm. latis, scapo erecto, valido, plurivaginato; vaginis lanceolatis, acuminatis, remotis, sursum descrecentibus et in bracteas abeuntibus; inflorescentia secunda vel subsecunda, laxe pluriflora; bracteis ovato-lanceolatis, longe acuminatis, ovariis vulgo superantibus, usque ad 2 cm. longis; floribus satis magnis, pubescentibus; sepalo postico lanceolato-oblongo, acuto, valde cucullato, apice reflexo, extus glanduloso vel glanduloso-pubescenti, usque ad 14 mm. longo, 4 mm. lato; sepalis lateralibus porrectis, lineari-oblongis, acutis, extus glanduloso-pubescentibus, usque ad 14 mm. longis, 2.5 mm. latis; petalis sigmoideo-linearibus, acutis, glabris, usque ad 14 mm. longis, 2.5 mm. latis; labello e conduplicato-excavato basi pandurato, in medio valde constricto, parte apicali plano, carnosio, ovato, acuto vel subrotundo, margine subcrenulato, parte mediano subrotundo, conduplicato-cochleato, parte basali margine calloso incrassato, pubescenti, in medio excavationis callo lineari, longitudinali, pubescenti ornato; toto labello usque ad 17 mm. longo, 8 mm. lato; columna generis; rostello anguste triangulari, subacuminato; ovario cylindrico, leviter torto, subcylindrico, pubescenti.

Mexico: Hidalgo, Lagoon of Metztitlan, 1600 m. alt. Coll. Juan Gonzales *s.n.*, sub Nagel 2194! Type! (AMES).

It differs from *D. durangensis* (A. & S.) Garay in having glandular-pubescent sepals, a differently proportioned lip with a different callus at its base and the shape of the rostellum. All specimens, with the exception of the holotype collection which I have seen named as "*Spiranthes durangensis*" including those from Texas, U.S.A., are all referable to this new species.

Deiregyne pandurata Garay, *sp. nov.*

Plantae terrestres, erectae, usque ad 40 cm. altae; radicibus fasciculatis, crassiusculis, breviter tomentosis; scapo stricto, supra basin 2-foliato, sursum bracteis hyalinis, decrescentibus transeunti; inflorescentia laxa pauciflora; bracteis ovato-lanceolatis, acuminatis, hyalinis, ovariis superantibus, usque ad 2 cm. longis; floribus satis magnis, glabris, niveis, nervis discoloribus; sepalo postico ligulato, acuto, usque ad 12 mm. longo, 2.5 mm. lato; sepalis lateralibus oblongo-linearibus, obtusis, usque ad 13 mm. longis, 2 mm. latis; petalis lineari-oblanceolatis, paululo sinuosis, basin versus angustatis, usque ad 10.5 mm. longis, 2 mm. latis; labello e cuneata basi anguste pandurato, parte basali angulato-rhombeo, parte apicali ovato, carnosio, leviter crenulato, margine supra basin utrinque caloso-incrassato, in medio isthmifero; toto labello usque ad 14 mm. longo, 5 mm. lato; columna gracili; 7 mm. longa; rostello oblongo-ligulato, acuto; ovario clavato, leviter torto.

Mexico: Durango, between Guanacevi and Guadalupe. Coll. Juan Gonzales no. 5810! Type! (AMES).

This specimen was included by Williams in the type description of his *Spiranthes falcata* L.O.Wms. It differs from the later in the shape and proportions of the petals and lip and the construction of the column, especially in the shape of the rostellum.

Deiregyne rhombilabia Garay, *sp. nov.*

Plantae terrestres, erectae, supra metrales; radicibus fasciculatis, carnosius, stipitato-tuberosus; foliis caulinis, satis tenuis, anguste ellipticis, acutis, basi longe vaginantibus imbricatisque, sub anthesin satis emarcidis, usque ad 15 cm. longis, 4 cm. latis; calibus erectis, validis, strictis, dimidio inferiore usque ad 5-foliatis, dimidio superiore vaginis, hyalinis imbricatisque omnino obtectis; spica terminali, spiraliter quaquaversa, dense multiflora, usque ad 25 cm. longa; bracteis hyalinis, lanceolatis, acuminatis, usque ad 25 mm. longis; floribus inter mediocres, griseo-viridibus; sepalo postico oblongo-ligulato, obtuso, extus pubescenti, usque ad 10 mm. longo, 4 mm. lato; sepalis

lateralibus obliquis, lineari-oblongis, obtusis, usque ad 11 mm. longis, 2.3 mm. latis; petalis e cuneata basi dolabriformibus, obtusis, usque ad 9 mm. longis, 2.8 mm. latis; labello carnosio, rhombeo, angulis rotundatis, antice obtuso, supra basin margine incrassato, pubescenti, usque ad 10 mm. longo, 5 mm. lato; columna cylindrica, 4 mm. longa; ovario ovoideo, pubescenti, sessili, torto, usque ad 5 mm. longo.

Mexico: Morelos, near Tlayacapan. Coll. Juan Gonzales 2163! Type! (AMES).

This new species is well represented in herbaria under the name of *Spiranthes Arseniana* Krzl. This confusion is due primarily to the material originally distributed under Arsenè, 6671, the type number of *S. Arseniana*. I have examined the holotype which is in Montpellier, and it represents *Pelexia Schaffneri* (Rchb.f.) Schltr. A duplicate of the holotype number however, in the United States National Herbarium, Washington, D.C., is a specimen identical with the present new species. Obviously the Washington material is responsible for the previous misapplication of the binomial, *Spiranthes Arseniana*.

Mesadenella angustisegmenta Garay, *sp. nov.*

Plantae terrestres, elatae, usque ad 30 cm. alta; radicibus fasciculatis, carnosis, pubescentibus; foliis basilaribus, plurimis, distincte petiolatis, petiolis canaliculatis, usque ad 6 cm. longis; lamina oblique ovato-elliptica, acuta vel subacuminata, usque ad 11 cm. longa, 5 cm. lata; scapo erecto, dimidio inferiori vaginato, dimidio superiori satis laxè spicato; bracteis lanceolatis, acuminatis, usque ad 15 mm. longis, sursum decrescentibus; floribus virescentibus, parvulis, extus pubescentibus; sepalo postico anguste ovato, acuto, usque ad 5 mm. longo, 1.2 mm. lato; sepalis lateralibus oblique lineari-oblongis, obtusis, usque ad 7 mm. longis, 1.5 mm. latis; petalis lineari-oblongis, acutis, usque ad 4.5 mm. longis, 1 mm. latis; labello anguste pandurato, parte superiori elliptico, subcrenulato, carnosulo-tuberculato, parte inferiori sagittato, disco in medio pubescenti; toto labello usque ad 6 mm. longo, 2 mm. lato; columna gracili, facie pubescenti, usque ad 3 mm. longa, basi in pedem

aequilongam producta; ovario hirsuto, clavato, usque ad 8 mm. longo.

Venezuela: Edo. Zulia, in forests of Río Lora. Coll. Pittier 10985! Type! (AMES).

Mesadenella peruviana Garay, *sp. nov.*

Plantae terrestres, usque ad 35 cm. altae; radicibus carnosis, elongatis, pubescentibus; foliis basilaribus, plurimis, e cuneata basi obovato-oblancheolatis, acutis, usque ad 24 cm. longis, 5 cm. latis; scapo erecto, plurivaginato, supra laxe plurifloro; bracteis lanceolatis, acuminatis, usque ad 15 mm. longis; floribus parvulis, flavidobrunneis, extus pubescentibus; sepalo postico lanceolato-oblongo, acuto, usque ad 6 mm. longo, 1.8 mm. lato; sepalis lateralibus obliquis, arcuatim lineari-oblongis, obtusis, usque ad 8 mm. longis, 2 mm. latis; petalis obscure lineari-oblancheolatis, acutis, usque ad 5 mm. longis, 1 mm. latis; labello panduriformi, utrinque parte ovato-ellipticis, antice rotundatis, basin bicornutis, usque ad 7 mm. longis, 2 mm. latis; columna cylindrica, paululo arcuata, 2.5 mm. longa; ovario cylindrico, haud torto, dense piloso, usque ad 8 mm. longo.

Peru: Depto. Huanuco, Quebrada Las Pavas, 5 km. s. of Tingo Maria on road to Las Palmas, 720 m. above sea level. Coll. Plowman & Kennedy 5713! Type! (AMES).

Odontorhynchus alticola Garay, *sp. nov.*

Plantae terrestres, sub anthesin aphyllae, usque ad 30 cm. altae; radicibus fasciculatis, carnosis, pubescentibus; scapo erecto, pubescenti, dimidio inferiori vaginis bracteiformibus, acuminatis obtecti, dimidio superiori laxe spicato, multifloro; bracteis ovato-lanceolatis, longe acuminatis, ovariis superantibus, usque ad 15 mm. longis, sursum decrescentibus; floribus virescentibus, extus pubescentibus; sepalo postico ovato, concavo, obtuso, usque ad 8 mm. longo, 3.5 mm. lato; sepalis lateralibus obliquis, lineari-oblongis, obtusis, usque ad 9 mm. longis, 2 mm. latis; petalis lineari-subfalcatis, obtusis, usque ad 8 mm. longis, 1.2 mm. latis; labello sessili, basi cochleato, intus bicornuto, deinde in ambitu obovato, valde concavo, carnosulo,

apicem versus constricto, lobo terminali undulato, reflexo, membranaceo, apice ipse truncato, toto labello usque ad 8 mm. longo, 4 mm. lato; columna crassa, facie pubescenti, usque ad 3 mm. longa; ovario plus minusve clavato, puberulo, haud torto.

Peru: Depto. Puno, Prov. Carabaya, Machea, 2800 m. alt. Coll. Vargas 6965! Type! (AMES).

This new species is known also from Argentina, and is illustrated as *Brachystele chlorops* (Rechb.f.) Schltr. in Bol. Soc. Argentina Bot. 16(4): 356, 1975.

***Odontorhynchus variabilis* Garay, sp. nov.**

Plantae terrestres, elatae, usque ad 40 cm. altae; radicibus fasciculatis, carnosis, pubescentibus; folius plerumque basalibus, paucis, lanceolatis vel lanceolato-ovatis, acutis, basi conduplicato-subpetiolatis, deinde vaginantibus, usque ad 12 cm. longis, 2.5 cm. latis, vulgo minoribus; caulibus strictis vel paululo arcuatis, multivaginatibus, apice dense spicatis; bracteis lanceolatis, acuminatis, usque ad 2 cm. longis; floribus semi-apertis, extus pubescentibus, vulgo viridis, interdum labello sucineo colorato; sepalo postico lineari-oblongo, obtuso, usque ad 9 mm. longo, 3 mm. lato; sepalis lateralibus obliquis, lineari-oblongis, obtusis, usque ad 9 mm. longis, 2 mm. latis; petalis lineari-spathulatis, dimidio superiori subrhombeis, margine integris vel subcrenulatis, usque ad 9 mm. longis, 2 mm. latis; labello varie reflexo, basi excavato, sub spice constricto, 3-lobo, lobis lateralibus erectis, subparallelis, explanato late ellipticis, lobo intermedio subquadrato vel transverso, margine crenulato ad grosse eroso denticulato, disco incrassato, in medio callis subparallelis, pubescentibus donato, toto labello usque ad 7 mm. longo, 5 mm. lato; columna brevi, sursum leviter dilatata, usque ad 2.5 mm. longa; ovario clavato, apicem versus pubescenti, usque ad 8 mm. longo.

Chile: Prov. Chiloé, Cucao, ca. 50 m. alt. Coll. Werdermann 303! Type! (AMES).

The specimens of this new species are commonly found in herbaria under *Spiranthes* or *Brachystele unilateralis*. *Brachystele unilateralis*, chosen as lectotype for the genus, however, is

very distinct in the columnar structure, especially in the rostellum, from those found in *Odontorhynchus*. Moreover, in *B. unilateralis* the leaves are linear, fasciculate, whereas in *O. variabilis* they are always lanceolate to lanceolate-ovate and petiolate.

The material available to me suggests that there are perhaps two or three different, closely related species hiding under *O. variabilis*, judging from the different terminal lobes of the lips and the coloration of the flowers. More field observations than are currently available are needed for the understanding of this complex.

In herbarium material I was able to ascertain already that plants described as *Spiranthes chilensis* A. Rich. are indeed distinct from *O. variabilis* in the shape of the lip which is quite apparent also on Richard's original drawing preserved in Paris.

Pteroglossa luteola* Garay, *sp. nov.

Plantae terrestres, elatae, usque ad 28 cm. altae; radicibus fasciculatis, stipitato-fusiformibus, elongatis pubescentibus; foliis basilaribus, e cuneata basi obovato-oblanceolatis, subpetiolatis, obtusis, glabris, usque ad 23 cm. longis, 5.5 cm. latis; scapo erecto, laxe plurivaginato, supra laxe paucifloro, usque ad 28 cm. longo; bracteis foliaceis, ovato-lanceolatis, subacuminatis, usque ad 2.5 cm. longis, 0.7 cm. latis; floribus conspicuis, pallide luteolis; sepalo postico lanceolato-oblongo, acuto, concavo, extus pubescenti, usque ad 18 mm. longo, 5 mm. lato; sepalis lateralibus oblique ellipticis, acutis, basi decurrentibus, extus breviter pubescentibus, usque ad 32 mm. longis, 7 mm. latis; petalis e cuneata basi oblique rhombeis, acutis, basi decurrentibus, usque ad 23 mm. longis, 6 mm. latis; labello e cuneata basi obovato-oblanceolato, supra apicem sublobato, apice ipso reflexo, crenulato, basin margine calloso, usque ad 28 mm. longo, 10 mm. lato; columna plus minusque arcuata, facie puberula, basi longe decurrentia, usque ad 25 mm. longa; ovario fusiformi, subsessili, usque ad 25 mm. longo.

Argentina: Estancia "Santa Teresa", Depto. Mburucuyá, Prov. Corrientes. Coll. Pedersen 8336! Type! (AMES).

Duplicates of the type collection were identified by Dr. Maevia Correa as *Centrogenium roseoalbum* (Rchb.f.) Schltr. and distributed under this name by Botanical Museum of the University, Copenhagen.

Pteroglossa rhombipetala Garay, *sp. nov.*

Plantae terrestres, usque ad 40 cm. altae; radicibus fasciculatis, crassiusculis, pubescentibus; foliis basalibus, 3-nis, e cuneata basi ellipticis vel obovato-ellipticis, obtusis, usque ad 20 cm. longis, 7 cm. latis; scapo erecto, dimidio inferiori vaginato, dimidio superiori laxe paucifloro; bracteis ovato-cucullatis, acutis, usque ad 3 cm. longis; floribus satis magnis, viridialbis, extus breviter pubescentibus; sepalo postico oblongo-lanceolato, acuto, concavo, usque ad 18 mm. longo, 4 mm. lato; sepalis lateralibus oblique oblongo-ligulatis, basi longe decurrentibus, acutis vel obtusis, usque ad 30 mm. longis, 5 mm. latis; petalis rhombeis, basi oblique longeque decurrentibus, apice obtusis, usque ad 22 mm. longis, 4 mm. latis; labello e cuneata basi obovato-oblancheolato, ad tertiam partem apicalem obscure lobulato, apice ipso obtuso, margine juxta basin crasso incrassato, usque ad 35 mm. longo, 8 mm. lato; columna leviter arcuata, facie puberula, usque ad 10 mm. longa; ovario arcuato-clavato, haud torto, usque ad 20 mm. longo.

Paraguay: Itapé. Coll. Schade s.n.! Type! (AMES). Also **Argentina:** Prov. Santa Fé, Villa Guillermina. Coll. Meyer 2624! (AMES).

Sauroglossum Schweinfurthianum Garay, *sp. nov.*

Plantae terrestres, elatae, usque ad 45 cm. altae; radicibus fasciculatis, crasse tuberosis, pubescentibus; foliis sub anthesin absentibus; scapo erecto, laxe paucivaginato, apice dense multifloro, spica ovoidea vel subcylindrica, usque ad 6 cm. longa; bracteis lanceolatis, acuminatis, 1 cm. longis, sursum decrescentibus; floribus aurantiacis, satis parvis; sepalo postico oblongo-ligulato, acuto vel obtuso, extus sparse puberulo, usque ad 7 mm. longo, 2.5 mm. lato; sepalis lateralibus obliquis, lineari-oblongis, supra basin leviter constrictis, obtusis, usque ad 8 mm.

longis, 2 mm. latis; petalis oblique spathulato-obovatis, obtusis, usque ad 7 mm. longis, 2mm. latis; labello e canaliculata basi subquadrato-ovato, apice undulato-crispato, usque ad 7 mm. longo, 4 mm. lato; columna brevi, 3 mm. alta; ovario cylindrico, puberulo, usque ad 6 mm. longo.

Peru: Depto. Huánuco, Llata. Coll. Macbride & Featherstone no. 2273! Type! (AMES); Chinchapalca, 5 miles above Mito. Coll. Macbride & Featherstone no. 1589! (AMES); Depto Junín, Huariaca. Coll. Asplund no. 11963! (S).

The above cited specimens have been cited as *Spiranthes Lechleri* (Schltr.) Schweinf. in Orchids of Peru by Charles Schweinfurth.

KEY TO GENERA

- 1. Stigmata terminal, on top of a truncate or subtruncate column and at right angle to rostellum; hence, they appear horizontal 2
- 1a. Stigmata anterior, either beneath the rostellum or on both sides of it; hence, they appear vertical 8
- 2. Flowers not resupinate, hence, lip uppermost; dorsal sepal connate with lateral sepals for a neglibible distance at base and adnate to filament of anther; clinandrium formed by a narrow, hyaline margin, free from filament of anther; pollinia with distinct caudicles **1. Nothostele**
- 2a. Flowers resupinate, hence, lip lowermost; dorsal sepal free from lateral sepals; clinandrium well-developed, fused with filament of anther; pollinia without caudicles 3
- 3. Petals free from dorsal sepal; rostellum deeply bifid to bicuspidate; plants with a single, sessile, cordate-subrotund leaf enveloping the stem **2. Discyphus**
- 3a. Petals agglutinate with dorsal sepal; rostellum not divided; plants either aphyllous at flowering time or with well-developed, cuneate to petiolate leaves 4
- 4. Rostellum soft, short, broadly triangular with an apical fovea; lip fleshy, cochleate in front **3. Sauroglossum**
- 4a. Rostellum rigid, more or less cartilaginous, sharply pointed; lip membranaceous, never cochleate in front ...
..... 5

5. Lateral sepals with column-foot do not form an observable mentum; column-foot very short, subequal in length to column; lip pandurate **4. Lyroglossa**
- 5a. Lateral sepals with free part of column-foot form either a mentum or a tubular, spur-like extension; column-foot much longer than column; lip never pandurate 6
6. Stigmata bilobed, more or less separated from one another by terminal edge of a distinct fold running full length on face of column 7
- 6a. Stigmata confluent, semicircular on top of terete column **5. Sacoila**
7. Lateral sepals with column-foot form a short, protruding chin, never spur-like **6. Pteroglossa**
- 7a. Lateral sepals with free part of column-foot form a pendulous, spur-like process **7. Eltroplectris**
8. Stigmata 2, lateral on both sides of rostellum, large saddle-shaped, surpassing the foveate-truncate rostellum in height; petals free from dorsal sepal; lip with a deeply biparted, coarsely lacerate, terminal lobe; flowers always resupinate, *i.e.*, the lip is uppermost in position **8. Pseudocranichis**
- 8a. Stigmata 2, always beneath the terminal rostellum; petals agglutinate with dorsal sepal; lip always without a coarsely lacerate terminal lobe; flowers resupinate, *i.e.*, the lip is in lowermost position; this position may be obtained either through twisting of the ovary, arching of the inflorescence, or through the pendulous habit of the plant 9
9. All three sepals connate basally, forming a distinct tube-like, often cylindrical nectary 10
- 9a. Dorsal sepal free from, or rarely connate a negligible distance with lateral sepals, never forming a cylindrical nectary, in exceptional cases, it may be likened to a shallow cup 17
10. Column free from sepaline tube; rostellum elongate, oblong-linear; claw of lip short, free from sepaline tube **9. Cyclopogon**
- 10a. Column partially adnate to dorsal sepal; rostellum short, triangular in outline; lip either sessile or with a long claw which is adnate to sepaline tube 11

11. Free portion of column inclined; clinandrium basket-like with free, lacerate-dentate sides not fused with sides of stigmatic cavity **10. Manniella**
- 11a. Free portion of column suberect; clinandrium infundibuliform with entire sides adnate to column 12
12. Flowers very large; rostellum acicular in center of a large, deeply bilobed, blunt plate; stigmata confluent **11. Cybebus**
- 12a. Flowers never very large, mostly medium to small; rostellum laminar, without a deeply bilobed plate 13
13. Plants miniature with ciliate to hairy leaves, growing on branches of trees; lateral sepals didymous to ventricose at base; median nerve of sepals always cristate-carinate dorsally **12. Eurystyles**
- 13a. Plants large, aphyllous or with glabrous leaves, terrestrial; lateral sepals never didymous at base; median nerve of sepals always ecristate dorsally 14
14. Rostellum emarginate; base of lip with marginal thickenings; plants stout; inflorescence more or less densely many-flowered **13. Aulosepalum**
- 14a. Rostellum entire, triangular; base of lip auriculate to sagittate 15
15. Plants stout; leaves, rarely absent during flowering time, with tubular, adpressed, imbricating, vaginate sheaths forming a prominent, pillar-like base below spreading petioles or blades; rostellum short, triangular with an apical fovea, easily ruptured; stigmata free to approximate; claw of lip short **14. Kionophyton**
- 15a. Plants small, slender; leaves when present, basal without a pillar-like base; rostellum without an apical fovea; claw of lip rather long 16
16. Plants autogamous with inconspicuous, decumbent rhizome; leaves basal, present during anthesis; column-foot short, oblique on top of ovary; rostellum short, obtuse; stigmata free to approximate **15. Helonoma**
- 16a. Plants allogamous with fasciculate, tuberous roots; leaves absent during anthesis; column-foot elongate, long-decurrent on side of ovary; rostellum elongate, acute to sub-

- acuminate; stigmata confluent **16. Gularia**
17. Anther bivalvate, often deeply cordate, emarginate at apex, much surpassing the rostellum, during anthesis becomes flattened and arcuately curved backwards; stigmata always confluent; rostellum emarginate, hardly differentiated, with a dorsal median toothlet which often is very much reduced in size or obscure altogether **17. Mesadenus**
- 17a. Anther entire, rather deeply concave to umbonate, as long as, or somewhat surpassing rostellum, as a rule never curved backwards; stigmata free to approximate or transversely confluent; rostellum variously developed, always distinguishable 18
18. Column ballooned out in front due to inflated clinandrium 19
- 18a. Column never ballooned out in front 20
19. Rostellum short, bilobed; lip sagittate at base; stigmata approximate **18. Beloglottis**
- 19a. Rostellum elongate, entire; lip more or less auriculate at base; stigmata confluent **19. Physogyne**
20. Stigmata situated on a deeply cleft, biparted cartilaginous plate; rostellum narrowly triangular, dorsal to plate, in center behind dividing cleft **20. Thelyschista**
- 20a. Stigmata always on same plane with rostellum 21
21. Rostellum divided into two distinct segments 22
- 21a. Rostellum undivided with an entire, pointed, truncate, emarginate or denticulate apex 23
22. Inflorescence arranged in a single or double spiral; dorsal sepal free from column; lateral sepals free; rostellum bifid or bidentate with sharply pointed or filiform segments **21. Spiranthes**
- 22a. Inflorescence quaquaversal or subsecund; dorsal sepal halfway adnate to column; lateral sepals connate at base; rostellum bilobed with broad, obtuse lobules **22. Galeottiella**
23. Rostellum rigid, more or less cartilaginous 24
- 23a. Rostellum soft, always pliable, laminar to filiform ... 31

24. Rostellum broadly triangular, acute at the more or less obscurely 3-lobulate or 3-dentate apex **23. Odontorrhynchus**
- 24a. Rostellum linear-lanceolate to almost acicular, sharply-pointed or with a small, lateral tooth at base on each side 25
25. Column footless, at most with an oblique base on top of ovary 26
- 25a. Column with a distinct, decurrent foot on side of ovary 29
26. Flowers basally enlarged, urnlike; sepals at base on both sides become separated and form an opening like small windows; lateral sepals adnate to claw of lip and together display a prominent mentum **24. Dithyridanthus**
- 26a. Flowers neither enlarged basally, nor do sepals form windows; mentum at best rudimentary, obscure 27
27. Column footless, its base arcuately confluent with claw of lip which is without any calli or marginal thickenings; lip segmented into a short, cup-shaped hypochile and an elongate, conduplicate, apically recurved epichile **25. Cotylolabium**
- 27a. Column with a distinct, oblique base on top of ovary, sharply parallel with calliferous base of lip; lip not segmented 28
28. Inflorescence subcorymbose, cernuous; lip unguiculate with large, thickened auricles; column elongate, slender **26. Coccineorchis**
- 28a. Inflorescence spicate, erect; lip sessile, calliferous along margins at base; column short, stout **27. Stenorrhynchus**
29. Plants miniature with few-flowered inflorescences; facultative epiphytes; rostellum unequally 3-dentate, the median tooth always longer; lip broadly concave to gibbose at base **28. Lankesterella**
- 29a. Plants large with an elongate, cylindrical, many-flowered inflorescence; facultative geophytes; rostellum entire or obscurely 3-dentate, always linear; lip sagittate or conduplicate at base 30

30. Flowers small in a rather loosely-flowered, often spirally twisted rachis; stigmata approximate; lip sagittate at base; rostellum linear-subulate **29. Mesadenella**
- 30a. Flowers medium in an all-sided, densely-flowered rachis; stigmata confluent or V-shaped; lip conduplicate at base, more or less sigmoid; rostellum on each side at base with a small lateral tooth **30. Skeptrostachys**
31. Rostellum very short, discernible only as a thin, transverse line above the edges of the stigmata, with a distinct membranaceous fovea at the tip; if membrane breaks or disintegrates in drying, rostellum appears to be emarginate in middle 32
- 31a. Rostellum as long as, or longer than wide, prominent, variously shaped 33
32. Dorsal sepal free to base of column; petals at most with a somewhat oblique base; stigmata approximate to free; fovea of truncate rostellum always breaks during drying **31. Brachystele**
- 32a. Dorsal sepal partially adnate to column; petals decurrent on column-foot; stigmata confluent, subquadrate; fovea of rostellum commonly persistent upon drying **32. Microthelys**
33. Column with an obliquely extended base on top of ovary 34
- 33a. Column with a distinct foot decurrent on side of ovary, either manifested externally or completely hidden internally 39
34. Lip unguiculate with a sagittate, auriculate or cordate base 35
- 34a. Lip sessile, either excavate or conduplicate-channelled at base 36
35. Flowers subglobose; lip cordate, cochleate with a transverse ridge above base; rostellum trapezoid, emarginate; stigmata confluent, reniform **33. Pseudogoodyera**
- 35a. Flowers elongate; lip never cochleate and without basal transverse ridge; rostellum linear-oblong to variously triangular; stigmata free to approximate **34. Beadlea**

36. Stem ascending from a rhizomatous or subrhizomatous base with fleshy tuber-like roots originating from distant to more or less approximate nodes; Stigmata confluent; rostellum oblong to ligulate, excised at apex **35. Hapalorchis**
- 36a. Stem caespitose with fasciculate roots or tubers; stigmata either confluent or separate; rostellum never oblong or ligulate, or excised at apex 37
37. Plants delicate; sepals connivent, subparallel; dorsal sepal free from column; lateral sepals oblique, sessile; column cylindric 38
- 37a. Plants robust; sepals divaricately spreading; dorsal sepal adnate basally to back of column; lateral sepals with a short, didymous base; rostellum arrect, obovate to angular **36. Buchtienia**
38. Stigmata 2, separate; rostellum subquadrate-flabellate, truncate, sulcate in middle; roots fleshy, fasciculate, geophytes **37. Stigmatosema**
- 38a. Stigmata 2, confluent; rostellum narrowly triangular, esulcate in middle; base of plants with a single tuber; growing among mosses on tree trunks **38. Stalkya**
39. Column-foot embedded full length internally in ovarian tissue and with it the more or less connate lateral sepals form a prominent, internal nectary or cuniculus without any externally observable line of adnation **39. Sarcoglottis**
- 39a. Column-foot decurrent on ovarian wall and with it the free or partially connate lateral sepals form an externally observable line of adnation 40
40. Dorsal sepal free from back of column; lateral sepals basally connate into a ventricose, saccate or spur-like vesicle which is manifested often in a pronounced mentum; stigmata 2, separate to variously approximate; lip commonly sagittate at base, rarely auriculate **40. Pelexia**
- 40a. Dorsal sepal partially adnate to back of column; lateral sepals never form a ventricose or saccate base, nor a mentum; stigmata 2, confluent; lip either unguiculate with auriculate to cordate base, but never sagittate or com-

- monly conduplicate to excavate 41
41. Lip with a distinct, flat claw without thickened margins and with a calliferous or thickened, auriculate to cordate base; petals straight with an oblique, but never decurrent base; rostellum from a narrowly cuneate base arcuately linear-triangular, acuminate **41. Schiedeella**
- 41a. Lip conduplicate to excavate at base with more or less thickened margins; petals sinuous with a decurrent base; rostellum without arcuate sides 42
42. Plants completely invested with diaphanous sheaths; rostellum from a broad base variously triangular, obtuse to acuminate **42. Deiregyne**
- 42a. Plants without diaphanous sheaths; rostellum either linear-oblong or filiform 43
43. Inflorescence few-flowered, secund; flowers horizontal; lip gibbose-excavate at base; rostellum filiform **43. Funckiella**
- 43a. Inflorescence many-flowered, quaquaversal, conical-thyrsoïd; flowers erect; lip navicular with channelled base; rostellum linear-oblong **44. Dichromanthus**

INDEX TO GENERA AND SPECIES

Acraea Lindl.

Widgreni Rchb.f. = *Brachystele* *Widgreni* (Rchb.f.) Schltr.

Adnula Raf.

petiolaris Raf. = *Pelexia* *adnata* (Sw.) Spreng.

Aetheria Bl. ex Endl.

caespitosa Lindl. = *Lankesterella* *caespitosa* (Lindl.) Hoehne

Arethusa L.

picta Anders. = *Sarcoglottis* *acaulis* (J.E.Sm.) Schltr.

Aristotelea Lour.

spiralis Lour. = *Spiranthes* *sinensis* (Pers.) Ames

Aulosepalum Garay, gen. nom. nov.

Basionym: *Gamosepalum* Schltr. in Beih. Bot. Centralbl. 37(2): 429, 1920, not Hausskn. 1897.

Etymology: *Aulos* = tube and *sepalum* = sepal, in reference to the sepaline tube.

Sepals subequal, connate to middle, forming a distinct, more or less cylindrical tube which is suberect to perpendicular on top of ovary. Petals connivent with dorsal sepal, basally decurrent. Lip with a long claw, adnate to tube, lamina with marginal thickenings at base. Column half-way adnate to dorsal sepal, free portion suberect, basally produced in a distinct foot; stigmata 2, confluent or closely approximate; rostellum short, triangular in outline, emarginate, soft; clinandrium funnel-shaped. Anther ovate-cucullate, obtuse; pollinia with a round viscidium. Ovary cylindric, somewhat twisted.

Plants stout, erect, xerophytic. Roots fasciculate, fusiform. Leaves, when present, basal, long-petiolate. Stem completely enclosed by more or less chartaceous, hyaline sheaths. Inflorescence many-flowered. Flowers of medium size, erect on top of ovary.

TYPE: *Spiranthes tenuiflora* Greenm.

Four species native to Mexico and Guatemala.

Index to species

Aulosepalum hemichrea (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes hemichrea* Lindl., Gen. and Sp. Orch. Pl. 473, 1840.

Aulosepalum Nelsonii (Greenm.) Garay, comb. nov.

Basionym: *Spiranthes Nelsonii* Greenm. in Proc. Amer. Acad. Sci. 35: 307, 1900.

Aulosepalum ramentaceum (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes ramentacea* Lindl. in Ann. Nat. Hist. 4: 384, 1840.

Aulosepalum tenuiflorum (Greenm.) Garay, comb. nov.

Basionym: *Spiranthes tenuiflora* Greenm. in Proc. Amer. Acad. Sci. 35: 308, 1900.

Beadlea Small, Flora SE United States 319, 1903.

Etymology: In honor of Chauncey Delos Beadle (1866–1950), an American botanist.

Sepals free, subparallel; lateral sepals oblique, with base of column forming a short but obscure mentum. Petals connivent with dorsal sepal. Lip unguiculate, sagittate, auriculate or cordate at base, lateral margins agglutinate with sides of column. Column erect, free from dorsal sepal, more or less elongate, with a short, oblique base on top of ovary; stigmata 2, free to approximate; rostellum undivided, soft, pliable, longer than wide, linear-oblong to variously triangular. Anther concave-cucullate; pollinia clavate, with a small viscidium. Ovary cylindric to fusiform, slightly twisted, sessile.

Terrestrial, slender plants with fasciculate, fusiform roots. Leaves basal, rosulate, commonly petiolate. Stem erect, variously bracteolate, terminated by a loosely- to densely-flowered spike. Flowers small.

TYPE: *Spiranthes Storeri* Chapm.

54 species native to the tropical and subtropical regions of the New World.

Index to species

Beadlea alexandrae (Krzl.) Garay, comb. nov.

Basionym: *Spiranthes alexandrae* Krzl. in Svensk Vet. Akad. Handl. 46(10): 33, 1911.

Beadlea aprica (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes aprica* Lindl., Gen. and Sp. Orch. Pl. 469, 1840.

Beadlea argyrifolia (Barb.Rodr.) Garay, comb. nov.

Basionym: *Spiranthes argyrifolia* Barb.Rodr., Gen. et Sp. Orch. Nov. 1: 183, 1877.

argyrotaenia (Schltr.) Garay

Beadlea bicolor (Ker-Gawl.) Garay, comb. nov.

Basionym: *Neottia bicolor* Ker-Gawl. in Bot. Reg. 10: t. 794, 1824.

Beadlea bidentata (Barb.Rodr.) Garay, comb. nov.

Basionym: *Cyclopogon alpestris* var. *bidentata* Barb.Rodr., Gen. et Sp. Orch. Nov. 2: 283, 1881.

bifida (Ridl.) Garay & Dunsterv. = *Helonoma bifida* (Ridl.) Garay

Beadlea calophylla (Barb.Rodr.) Garay, comb. nov.

Basionym: *Spiranthes calophylla* Barb. Rodr., Gen. et Sp. Orch. Nov. 1: 182, 1877.

Beadlea casanaënsis (Schltr. ex Mansf.) Garay, comb. nov.

Basionym: *Cyclopogon casanaënsis* Schltr. ex Mansf. in Fedde, Rep. 27: 32, 1929.

- Beadlea cearensis** (Barb.Rodr.) Garay, comb. nov.
 Basionym: *Cyclopogon cearensis* Barb. Rodr., Gen. et Sp. Orch.
 Nov. 2: 283, 1881.
- comosa** (Rchb.f.) Hamer & Garay
- Beadlea congesta** (Vell.) Garay, comb. nov.
 Basionym: *Serapias congesta* Vell., Fl. Flum. Ic. 9: t.54, 1831.
- cranichoides** (Griseb.) Small
- Beadlea diversifolia** (Cogn.) Garay, comb. nov.
 Basionym: *Spiranthes diversifolia* Cogn. in Mart., Fl. Bras. 3(6): 543,
 1906.
- Beadlea Dusenii** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon Dusenii* Schltr. in Fedde, Rep. 16: 323, 1920.
- Beadlea Dutraei** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon Dutraei* Schltr. in Fedde, Rep. Beih. 35: 30, 1925.
- elata** (Sw.) Small
- Beadlea eldorado** (Linden & Rchb.f.) Garay, comb. nov.
 Basionym: *Spiranthes eldorado* Linden & Rchb.f. in Bot. Zeit. 15: 157,
 1857.
- Beadlea elegans** (Hoehne) Garay, comb. nov.
 Basionym: *Cyclopogon elegans* Hoehne in Arq. Bot. Est.S.Paulo n.s. 1(6):
 132, 1944.
- elliptica** Garay
- epiphytica** Dodson
- Beadlea Eugenii** (Rchb.f. & Warm.) Garay, comb. nov.
 Basionym: *Spiranthes Eugenii* Rchb.f., Otia Bot. Hamb. 2: 84, 1881.
- Beadlea glabrescens** (Hashimoto) Garay, comb. nov.
 Basionym: *Spiranthes glabrescens* Hashimoto in Journ. Jap. Bot. 46: 175,
 1971.
- Beadlea goodyeroides** (Schltr.) Garay, comb. nov.
 Basionym: *Spiranthes goodyeroides* Schltr. in Fedde, Rep. 10: 448, 1911.
- gracilis** (Schltr.) Garay
- Beadlea graciliscapa** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon graciliscapus* Schltr. in Anex. Mem. Inst. Butantan
 1(4): 23, 1922.
- Beadlea Hatschbachii** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon Hatschbachii* Schltr. in Fedde, Rep. 23: 34. 1926.
- Hennisiana** (Sandt) Garay
- Beadlea iguapensis** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon iguapensis* Schltr. in Anex. Mem. Inst. Butantan
 1(4): 25, 1922.
- inaequilatera** (Poepp. & Endl.) Garay
- Beadlea itatiaiensis** (Krzl.) Garay, comb. nov.
 Basionym: *Spiranthes itatiaiensis* Krzl. in Svensk Vet. Akad. Handl.
 46(10): 36, 1911.
- Beadlea laxiflora** (Ekman & Mansf.) Garay, comb. nov.
 Basionym: *Cyclopogon laxiflorus* Ekman & Mansf. in Arkiv f. Bot. 22A:
 11, 1929.
- Lindleyana** (Link,Kl. & Otto) Garay & Dunsterv.

- Beadlea longibracteata** (Barb.Rodr.) Garay, comb. nov.
 Basionym: *Spiranthes longibracteata* Barb. Rodr., Gen. et Sp. Orch. Nov. 1: 185, 1877.
- Beadlea luteo-alba** (Rich. & Gal.) Garay, comb. nov.
 Basionym: *Spiranthes luteo-alba* Rich. & Gal. in Ann. Sci. Nat. ser. 3, 3: 32, 1845.
- Millei** (Schltr.) Garay
miradorensis (Schltr.) Garay & Dunsterv.
- Beadlea multiflora** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon multiflorus* Schltr. in Anex. Mem. Inst. Butantan 1(4): 27, 1922.
- Beadlea oligantha** (Hoehne) Garay, comb. nov.
 Basionym: *Spiranthes oligantha* Hoehne in Rev. Mus. Paulist. 10: 442, 1919.
- olivacea** (Rolfe) Garay
organensis Pabst
peruviana (Presl) Garay
plantaginea Garay
- Beadlea prasophylloides** Garay, nom. et stat. nov.
 Basionym: *Spiranthes Prasophyllum* var. *cleistogama* Ames & Correll in Bot. Mus. Leaflet 10: 65, 1942.
- Prasophyllum** (Rchb.f.) Hamer & Garay
Rimbachii (Schltr.) Garay
- Beadlea saccata** (Rich. & Gal.) Garay, comb. nov.
 Basionym: *Spiranthes saccata* Rich. & Gal. in Ann. Sci. Nat. ser. 3, 3: 32, 1845.
- Storeri** (Chapm.) Small = *Beadlea cranichoides* (Griseb.) Small
- Beadlea subalpestris** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon subalpestris* Schltr. in Fedde, Rep. Beih. 35: 32, 1925.
- Beadlea taquaremboënsis** (Barb.Rodr.) Garay, comb. nov.
 Basionym: *Stenorrhynchus taquaremboënsis* Barb.Rodr. in Contr. Jard. Bot. Rio 1: 68, 1902.
- Beadlea trifasciata** (Schltr.) Garay, comb. nov.
 Basionym: *Cyclopogon trifasciatus* Schltr. in Fedde, Rep. Beih. 35: 33, 1925.
- Beadlea truncata** (Lindl.) Garay, comb. nov.
 Basionym: *Spiranthes truncata* Lindl., Gen. and Sp. Orch. Pl. 470, 1840.
- Beadlea variegata** (Barb.Rodr.) Garay, comb. nov.
 Basionym: *Cyclopogon variegatus* Barb. Rodr., Gen. et Sp. Orch. Nov. 2: 282, 1881.
- Beadlea venusta** (Barb.Rodr.) Garay, comb. nov.
 Basionym: *Stenorrhynchus venustus* Barb.Rodr. in Contr.Jard. Bot. Rio 1: 49, 1901.
- Beadlea vittata** (Dutra ex Pabst) Garay, comb. nov.
 Basionym: *Cyclopogon vittatus* Dutra ex Pabst in Sellowia 10: 128, 1959.
- Beadlea Warmingii** (Rchb.f.) Garay, comb. nov.
 Basionym: *Spiranthes Warmingii* Rchb.f., Otia Bot. Hamb. 2: 84, 1881.

Beloglottis Schltr. in Beih. Bot. Centralbl. 37(2): 364, 1920.

Etymology: *Belos* = dart and *glotta* = tongue, in reference to the shape of the lip of the type species.

Sepals subparallel, essentially free, occasionally connate to a negligible distance akin to a shallow cap, the apices arcuately spreading; lateral sepals with an oblique, subdecurrent base. Petals parallel and agglutinate with dorsal sepal, short-decurrent at base. Lip distinctly unguiculate, the claw adnate to base of lateral sepals, lamina canaliculate with sagittate base; lateral margins in middle agglutinate with sides of column. Column rather short, due to inflated clinandrium basally ballooned out, partly adnate to dorsal sepal, basally produced into a short, oblique foot without forming an ovarian spur or mentum; stigmata 2, anterior, touching each other in middle; rostellum short, erect, bilobed, bifid or distinctly bidentate. Anther more or less ovate, concave, acute, slightly cordate at base; pollinia clavate with narrowly elliptic viscidium tightly inserted between rostellar lobes. Ovary slender, cylindric, sessile.

Terrestrial plants with fasciculate, puberulent roots. Leaves several, basal, petiolate. Scape slender, erect, bracteolate, terminated by a loosely to densely many-flowered spike. Flowers small to almost inconspicuous.

TYPE: *Spiranthes costaricensis* Rchb.f.

Seven species native to tropical and subtropical regions of the New World.

Index to species

bicaudata (Ames) Garay

boliviensis Schltr.

costaricensis (Rchb.f.) Schltr.

ecallosa (A. & S.) Hamer & Garay

Hameri Garay

mexicana Garay

Beloglottis subpandurata (A. & S.) Garay, comb. nov.

Basionym: *Spiranthes subpandurata* A. & S., Sched. Orch. 8: 4, 1925.

Brachystele Schltr. in Beih. Bot. Centralbl. 37(2): 370, 1920.

Etymology: *Brachys* = short and *stele* = pillar, column, in reference to the short column.

Sepals free to base, subparallel; lateral sepals with an oblique base, together with short, incurved column-foot form a small, obtuse mentum. Petals agglutinate to dorsal sepal, at most with an oblique base. Lip sessile, arcuately conduplicate with a recurved apex, basally with thickened margins; lamina agglutinate in middle to sides of column. Column short, widened toward apex, basally produced in a short, incurved foot; stigmata 2, approximate to free, rostellum soft, undivided, very short, discernible only as a thin, truncate line above the edges of stigmata, with a distinct, membranaceous fovea of a thin membrane in the center which always breaks during drying, hence rostellum appears to be emarginate or incised in middle. Anther short, concave, rotund; pollinia short, clavate with a small, roundish viscidium tightly fitting into rostellar fovea. Ovary more or less arcuately cylindric, somewhat twisted.

Terrestrial plants, commonly leafless during anthesis. Roots fasciculate, fleshy, fusiform, often stipitately fusiform. Leaves commonly absent during anthesis, when present, basal, petiolate. Stem erect, vaginate, terminated by a cylindric, densely many-flowered spike, rarely loosely secund. Flowers small to minute.

LECTOTYPE: *Ophrys unilateralis* Poir. [Cabrera in DAGI 1(6): 16, 1942]

13 species native mainly to South America, especially Brazil and adjacent countries, with one species in Central America and the West Indies.

Index to species

aguacatensis (Rchb.f.) Schltr. = *Brachystele guayanensis* (Lindl.) Schltr.

Arechavaetae (Krzl.) Schltr.

atramentaria (Krzl.) Schltr. = *Brachystele Widgrenii* (Rchb.f.) Schltr.

bracteosa (Lindl.) Schltr.

Brenesii (Schltr.) Schltr. = *Brachystele guayanensis* (Lindl.) Schltr.

Burkartii Correa

camporum (Lindl.) Schltr.

chlorops (Rchb.f.) Schltr. = *Odontorrhynchus chlorops* (Rchb.f.) Garay

cyclochila (Krzl.) Schltr.

cycloglossa (Krzl.) Schltr., sphalm. = *Brachystele cyclochila* (Krzl.) Schltr.

delicatula (Krzl.) Schltr.

dilatata (Lindl.) Schltr.

guayanensis (Lindl.) Schltr.

Hatschbachii Pabst = *Stigmatosema Hatschbachii* (Pabst) Garay

Hoehnei Pabst = *Brachystele Ulaei* (Cogn.) Schltr.

icmadophila (Barb.Rodr.) Schltr. ex Pabst, nomen = *Spiranthes icmadophila* Barb. Rodr.

Lechleri Schltr. = *Brachystele unilateralis* (Poir.) Schltr.

longiflora Schltr. = *Sauroglossum longiflorum* (Schltr.) Garay

Nuil (L.C.Rich.) Schltr. = *Brachystele unilateralis* (Poir.) Schltr.

Brachystele pedicellata (Cogn.) Garay, comb. nov.

Basionym: *Spiranthes pedicellata* Cogn. in Mart., Fl. Bras. 3(4): 210, 1895.

spiranthoides Schltr. = *Brachystele cyclochila* (Krzl.) Schltr.

subfiliformis (Cogn.) Schltr.

Ulaei (Cogn.) Schltr.

unilateralis (Poir.) Schltr.

Widgrenii (Rchb.f.) Schltr.

Buchtienia Schltr. in Fedde, Rep. 27: 33, 1929.

Etymology: In honor of Otto Buchtien (1859 – 19. .), a German plant collector and Director of Museo National in La Paz, Bolivia.

Dorsal sepal erect, free, partially adnate to back of column; lateral sepals divaricate, connate at base and forming a more or less didymous sac with a short column-foot. Petals shorter than dorsal sepal to which the inner margins agglutinate, base decurrent on column-foot. Lip sessile, inarticulate, smaller than other perianths; the broadly subquadrate claw with thickened margins, more or less subsaccate, firmly fused with column-foot and enclosed in the sac-like base of the lateral sepals; blade 3-lobed, lateral lobes erect, midlobe reflexed. Column short, glabrous, terete, somewhat sigmoid, form a narrow pedicellate base abruptly expanding upwards into an urceolate clinandrium, basally produced in an oblique foot on top of ovary; stigmata 2, approximate to confluent, transversely elliptic, marginate; rostellum undivided, soft, laminar, arrect, obovate to angular, esutate in middle (never 3-lobed as originally reported). Anther erect to somewhat incumbent, umbonate; pollinia obovoid with a small viscidium. Ovary sessile.

Terrestrial, large plants. Roots fasciculate, tuberous. Leaves basal, several, long-petiolate. Scape much surpassing the leaves,

remotely sheathed, terminated by a long, loosely many-flowered spike. Flowers small, resupinate.

TYPE: *Buchtienia boliviensis* Schltr.

Three species native to Ecuador, Peru, Bolivia and Brazil.

Index to species

boliviensis Schltr.
ecuadorensis Garay
rosea Garay

Centrogenium Schltr.

acianthiforme (Rchb.f. & Warm.) Hoehne = *Nothostele acianthiformis* (Rchb.f. & Warm.) Garay
calcaratum (Sw.) Schltr. = *Eltropectris calcarata* (Sw.) Garay & Sweet
Cogniauxianum Schltr. = *Eltropectris Cogniauxiana* (Schltr.) Pabst
janeirense Porto & Brade = *Eltropectris janeirensis* (Porto & Brade) Pabst
Kuhlmannianum Hoehne = *Eltropectris Kuhlmanniana* (Hoehne) Pabst
longicornu (Cogn.) Schltr. = *Eltropectris longicornu* (Cogn.) Pabst
luridum Correa = *Pteroglossa lurida* (Correa) Garay
macrophyllum Schltr. = *Eltropectris macrophylla* (Schltr.) Pabst
olivaceum (Rolfe) Schltr. = *Pelexia olivacea* Rolfe
Radmakeri Ruschi & LaGasa = *Eltropectris calcarata* (Sw.) Garay & Sweet
roseoalbum (Rchb.f.) Schltr. = *Eltropectris roseoalba* (Rchb.f.) Hamer & Garay
Schlechteranum Porto & Brade = *Eltropectris Schlechterana* (Porto & Brade) Pabst
setaceum (Lindl.) Schltr. = *Eltropectris calcarata* (Sw.) Garay & Sweet
trilobum (Lindl.) Schltr. = *Eltropectris triloba* (Lindl.) Pabst

Cladobium Schltr., not Lindl.

ceracifolium (Barb. Rodr.) Schltr. = *Lankesterella ceracifolia* (Barb. Rodr.) Mansf.
costaricense Schltr. = *Lankesterella orthantha* (Krzl.) Garay
epiphytum (Barb. Rodr.) Schltr. = *Lankesterella caespitosa* (Lindl.) Hoehne
gnomus (Krzl.) Schltr. = *Lankesterella gnomus* (Krzl.) Hoehne
longicollis (Cogn.) Schltr. = *Lankesterella longicollis* (Cogn.) Hoehne
majus Hoehne & Schltr. = *Lankesterella ceracifolia* (Barb. Rodr.) Mansf.
oliganthum Hoehne & Schltr. = *Lankesterella cercacifolia* (Barb. Rodr.) Mansf.
pilosum (Cogn.) Schltr. = *Lankesterella pilosa* (Cogn.) Hoehne
Spannagelianum Hoehne & Brade = *Lankesterella Spannageliana* (Hoehne & Brade) Hoehne

Coccineorchis Schltr. in Beih. Bot. Centralbl. 37(2): 434, 1920.

Etymology: *Kokkinos* = scarlet and *orchis* = orchid, in reference to color of the flowers, especially of the type species.

Sepals free, similar, subparallel; lateral sepals with an obliquely inserted base on top of the ovary without forming an observable mentum. Petals agglutinate with dorsal sepal. Lip distinctly unguiculate, conduplicate with an arcuate apex, basally prominently auriculate; margins of lamina in middle agglutinate with sides of column. Column slender, elongate, pubescent in front, free from dorsal sepal, with a distinct, oblique base on top of the ovary; stigmata 2, anterior, approximate, touching one another in the middle; rostellum rigid, more or less cartilaginous, linear-lanceolate to subulate, sharply pointed. Anther ovate-lanceolate, acute, umbonate; pollinia clavate with a large, narrowly oblong viscidium. Ovary fusiform, sessile.

Terrestrial, large plants with fasciculate, fleshy, fusiform roots. Leaves basal, rosulate, distinctly petiolate. Scape erect, vaginate, terminated by a short, subcorymbose, cernuous, subdense spike. Flowers conspicuous, brightly colored.

TYPE: *Spiranthes corymbosa* Krzl.

Four species native to higher elevations of Central and South America.

Index to Species

Coccineorchis bracteosa (A. & S.) Garay, comb. nov.

Basionym: *Stenorrhynchus bracteosus* A. & S., Sched.Orch. 8: 6, 1925.

cernua (Lindl.) Garay

corymbosa (Krzl.) Schltr. = *Coccineorchis cernua* (Lindl.) Garay

Coccineorchis navarrensis (Ames) Garay, comb. nov.

Basionym: *Stenorrhynchus navarrensis* Ames, Sched.Orch. 9: 13, 1925.

Coccineorchis Standleyi (Ames) Garay, comb. nov.

Basionym: *Stenorrhynchus Standleyi* Ames, Sched.Orch. 9: 14, 1925.

Cogniauxiocharis (Schltr.) Hoehne

euphlebius (Oliver ex Rchb.f.) Hoehne = *Pteroglossa euphlebia* (Rchb.f.)

Garay

Glazioviana (Cogn.) Hoehne = *Pteroglossa Glazioviana* (Cogn.) Garay

Collea Lindl.

adnata Lindl. = *Pelexia adnata* (Sw.) Spreng.

calcarata Lindl. = *Eltroplectris calcarata* (Sw.) Garay & Sweet

Cotylolabium Garay, gen. nov.

Etymology: *Kotyla* = cup-shaped cavity and *labios* = lip, in reference to the hypochile of the lip.

Sepala similia, libera, subparallela. Petala cum sepalo postico conniventia, cucullam formantia. Labellum cuneato-unguiculatum, bipartitum: hypochilium cupulatum, epichilium conduplicatum, apice recurvo. Columna elongata, gracilis, basi obliqua, apoda, ungue labelli confluentia; stigmata 2, valde approximata; rostellum rigidum, plus minusve cartilagineum, aciculare, acuminatissimum. Anthera ovato-lanceolata, acuta, umbonata; pollinia clavata, viscidio anguste oblongo. Ovarium cylindraceum, sessile, leviter tortum.

Herbae terrestres, foliosae; radicibus fasciculatis, carnosis. Folia caulina, pauca. Inflorescentia terminalis, pauciflora, rachidi spiraliter torta. Flores satis magnae, speciosae.

Sepals similar, free, subparallel. Petals with dorsal sepal connivent to form a hood over the column. Lip cuneate-unguiculate, segmented: hypochile cup-shaped, epichile conduplicate, recurved at apex. Column elongate, slender with a short oblique base, confluent with claw of lip, completely footless; stigmata 2, anterior tightly approximate; rostellum rigid, more or less cartilaginous, acicular, sharp-pointed. Anther ovate-lanceolate, acute, umbonate; pollinia clavate with narrowly oblong viscidium. Ovary cylindric, sessile, slightly twisted.

Terrestrial, leafy plants with fasciculate, fleshy roots. Leaves few, cauline. Inflorescence terminal, few-flowered with spirally twisted rachis. Flowers large, showy.

TYPE: *Stenorrhynchus Lutzii* Pabst

One species native to Brazil.

Index to species

Cotylolabium Lutzii (Pabst) Garay, comb. nov.

Basionym: *Stenorrhynchus Lutzii* Pabst in Rev.Bras. Biol. 15: 194, 1955.

Cranichis Sw.

thysanochila Robins. & Greenm. = Pseudocranichis thysanochila (Robins. & Greenm.) Garay

Cybebus Garay in Bot. Mus. Leaflet 26: 15, 1978.

Etymology: *Kybebos* = stooping with head bent, in reference to the rectangularly bent flowers.

Sepals similar, divaricate, arcuately spreading, basally connate into a cylindrical tube which is rectangularly attached to ovary; dorsal sepal partially adnate to back of column. Petals tightly connivent with dorsal sepal, forming a hood over column. Lip horizontal, navicular, auriculate-sagittate at base. Column rectangularly bent, expanded upwards, basally extended into a long, arcuate foot; stigmata 2, tightly approximate to almost confluent; rostellum acicular in center of deeply bilobed, blunt plate. Anther umbonate; pollinia clavate with large, elliptic viscidium in between large rostellar lobes. Ovary cylindric to fusiform, sessile, twisted.

Terrestrial, large plants with thick, tuberous roots. Leaves basal, large, prominently petiolate. Scape erect, loosely vaginate, terminated by a loosely few-flowered, secund spike. Flowers large, showy.

TYPE: *Cybebus grandis* Garay

One species, so far known only from Colombia.

Index to species

grandis Garay

Cyclopogon Presl, Rel. Haenk. 1: 93, 1827.

Etymology: *Kyklos* = circle and *pogon* = tail of fire with divided ends, in reference to the (reddish in dry condition) sepals which emerge from the circular sepaline tube resembling tails of fire with divided ends.

Sepals similar, basally connate into a cylindric tube which is perpendicular on top of ovary, free above with spreading segments. Petals connivent with dorsal sepal, at base for a short

distance adnate to sides of column. Lip broadly unguiculate, sagittate-auriculate, the claw free from sepaline tube. Column free, elongate, slender, cylindric, pubescent in front, basally produced into a short, oblique base; stigmata 2, anterior, approximate; rostellum elongate, oblong-linear, truncate or obscurely excised. Anther in the descending clinandrium erect, umbonate, 2-celled. Ovary cylindric, sessile.

Terrestrial plants with fleshy, fasciculate, villose roots. Leaves basal, rosulate, prominently petiolate. Scape slender, several-sheathed, spicate above. Flowers small, membranaceous.

TYPE: *Cyclopogon ovalifolium* Presl

One species native to the Andes of Colombia, Ecuador and Peru.

Index to species

albopunctata Barb.Rodr. = *Mesadenella cuspidata* (Lindl.) Garay
alexandrae (Krzl.) Schltr. = *Beadlea alexandrae* (Krzl.) Garay
alpestris Barb.Rodr. = *Beadlea congesta* (Vell.) Garay
amabilis (Ames) J. Acuña = *Hapalorchis lineatus* (Lindl.) Schltr.
aphyllus Schltr. = *Pelexia goyazensis* (Cogn.) Garay
apricus (Lindl.) Schltr. = *Beadlea aprica* (Lindl.) Garay
argyriifolius Barb.Rodr. = *Beadlea argyriifolia* (Barb.Rodr.) Garay
argyrotaenius Schltr. = *Beadlea argyrotaenia* (Schltr.) Garay
atroviridis Barb.Rodr. = *Mesadenella atroviridis* (Barb.Rodr.) Garay
Bangii (Rolfe) Schltr. = *Odontorrhynchus chlorops* (Rehb.f.) Garay
bicolor (Ker-Gawl.) Schltr. = *Beadlea bicolor* (Ker-Gawl.) Garay
bifidus (Ridl.) Schltr. = *Helonoma bifida* (Ridl.) Garay
Bradei Schltr. = *Beadlea variegata* (Barb.Rodr.) Garay
calophyllus Barb.Rodr. = *Beadlea calophylla* (Barb.Rodr.) Garay
candidus (Krzl.) Pabst = *Hapalorchis candidus* (Krzl.) Schltr.
casanaënsis Schltr. ex Mansf. = *Beadlea casanaënsis* (Schltr. ex Mansf.) Garay
cearensis Barb.Rodr. = *Beadlea cearensis* (Barb.Rodr.) Garay
chloroleucus (Barb.Rodr.) Schltr. = *Stigmatosema polyaden* (Vell.) Garay
congestus (Vell.) Hoehne = *Beadlea congesta* (Vell.) Garay
cranichoides (Griseb.) Schltr. 1920 = *Beadlea cranichoides* (Griseb.) Small
cranichoides Schltr. 1921 = *Beadlea peruviana* (Presl) Garay
cuspidatus (Lindl.) Schltr. = *Mesadenella cuspidata* (Lindl.) Garay
densiflorus Schltr. = *Beadlea Lindleyana* (Link, Kl. & Otto) Garay & Dunsterv.
diversifolius (Cogn.) Schltr. = *Beadlea diversifolia* (Cogn.) Garay
Doeringii Schltr. ex Hoehne, nomen = *Beadlea variegata* (Barb.Rodr.) Garay

Dusenii Schltr. = *Beadlea Dusenii* (Schltr.) Garay
 Dutraei Schltr. = *Beadlea Dutraei* (Schltr.) Garay
 elatus (Sw.) Schltr. = *Beadlea elata* (Sw.) Small
 eldorado (Linden & Rchb.f.) Schltr. = *Beadlea eldorado* (Linden & Rchb.f.) Garay
 elegans Hoehne = *Beadlea elegans* (Hoehne) Garay
 Eugenii (Rchb.f. & Warm.) Schltr. = *Beadlea Eugenii* (Rchb.f. & Warm.) Garay
 goodyeroides Schltr. = *Beadlea goodyeroides* (Schltr.) Garay
 goyazensis (Cogn.) Schltr. = *Pelexia goyazensis* (Cogn.) Garay
 gracilis Schltr. = *Beadlea gracilis* (Schltr.) Garay
 graciliscapus Schltr. = *Beadlea graciliscapa* (Schltr.) Garay
 Hatschbachii Schltr. = *Beadlea Hatschbachii* (Schltr.) Garay
 icmadophilus (Barb.Rodr.) Schltr. = *Spiranthes icmadophila* Barb. Rodr.
 iguapensis Schltr. = *Beadlea iguapensis* (Schltr.) Garay
 inaequilaterus (Poepp. & Endl.) Schltr. = *Beadlea inaequilatera* (Poepp. & Endl.) Garay
 itatiaiensis (Krzl.) Hoehne = *Beadlea itatiaiensis* (Krzl.) Garay
 Langei Schltr. = *Beadlea congesta* (Vell.) Garay
 laxiflorus Ekman & Mansf. = *Beadlea laxiflora* (Ekman & Mansf.) Garay
 lineatus (Lindl.) Pabst = *Hapalorchis lineata* (Lindl.) Schltr.
 Lindleyanus (Link, Kl. & Otto) Schltr. = *Beadlea Lindleyana* (Link, Kl. & Otto) Garay & Dunsterv.
 longibracteatus (Barb.Rodr.) Schltr. = *Beadlea longibracteata* (Barb.Rodr.) Garay
 luteo-albus (Rich. & Gal.) Schltr. = *Beadlea luteo-alba* (Rich. & Gal.) Garay
 macer Schltr. = *Beadlea peruviana* (Presl) Garay
 Maderoi Schltr. = *Beadlea peruviana* (Presl) Garay
 micranthus (Barb.Rodr.) Schltr. = *Hapalorchis micrantha* (Barb.Rodr.) Hoehne
 Millei (Schltr.) Schltr. = *Beadlea Millei* (Schltr.) Garay
 minutiflorus (Rchb.f.) Schltr. = *Beadlea peruviana* (Presl) Garay
 miradorensis Schltr. = *Beadlea miradorensis* (Schltr.) Garay & Dunsterv.
 monophyllus (Lindl.) Schltr. = *Cranichis diplhylla* Sw.
 moyobambae Schltr. = *Beadlea inaequilatera* (Poepp. & Endl.) Garay
 multiflorus Schltr. = *Beadlea multiflora* (Schltr.) Garay
 nigricans (Schltr.) Schltr. = *Beadlea cranichoides* (Griseb.) Small
 nutantiflorus (Schltr.) Schltr. = *Microthelys nutantiflora* (Schltr.) Garay
 oliganthus (Hoehne) Hoehne & Schltr. = *Beadlea oligantha* (Hoehne) Garay
 olivaceus (Rolfe) Schltr. = *Beadlea olivacea* (Rolfe) Garay
ovalifolium Presl
 paludosus (Cogn.) Schltr. = *Beadlea aprica* (Lindl.) Garay
 Pamii (Braid) Mansf. & Herter = *Beadlea Lindleyana* (Link, Kl. & Otto) Garay & Dunsterv.
 pauciflorus (Porto & Brade) Pabst = *Hapalorchis pauciflora* Porto & Brade
 paulensis Schltr. = *Beadlea itatiaiensis* (Krzl.) Garay
 peruvianus (Presl) Schltr. = *Beadlea peruviana* (Presl) Garay
 plantagineus (Lindl.) Schltr. = *Beadlea plantaginea* Garay
 platyunguis Schltr. = *Beadlea aprica* (Lindl.) Garay

Prasophyllum (Rchb.f.) Schltr. = *Beadlea Prasophyllum* (Rchb.f.) Hamer & Garay

procera Regnell ex Barb.Rodr. = *Sauroglossum elatum* Lindl.

pubescens Barb.Rodr. ex Hoehne = *Beadlea bicolor* (Ker-Gawl.) Garay

Rimbachii Schltr. = *Beadlea Rimbachii* (Schltr.) Garay

rotundifolius (Cogn.) Schltr. = *Discyphus scopulariae* (Rchb.f.) Schltr.

saccatus (Rich. & Gal.) Schltr. = *Beadlea saccata* (Rich. & Gal.) Garay

saxicolus Schltr. = *Beadlea congesta* (Vell.) Garay

spiranthoides Schltr. = *Beadlea peruviana* (Presl) Garay

stenoglossus Pabst = *Hapalorchis lineatus* (Lindl.) Schltr.

stictophyllum Schltr. = *Beadlea olivacea* (Rolfe) Garay

subalpestris Schltr. = *Beadlea subalpestris* (Schltr.) Garay

taquaremboënsis (Barb.Rodr.) Schltr. = *Beadlea taquaremboënsis* (Barb. Rodr.) Garay

trifasciatus Schltr. = *Beadlea trifasciata* (Schltr.) Garay

trilineatus Barb.Rodr. = *Beadlea longibracteata* (Barb.Rodr.) Garay

truncatus (Lindl.) Schltr. = *Beadlea truncata* (Lindl.) Garay

Tuerckheimii (Schltr.) Schltr. = *Schiedeella Llaveana* (Lindl.) Schltr.

variegatus Barb.Rodr. = *Beadlea variegata* (Barb.Rodr.) Garay

venustus (Barb.Rodr.) Schltr. = *Beadlea venusta* (Barb.Rodr.) Garay

violaceus (Rich. & Gal.) Schltr. = *Schiedeella violacea* (Rich. & Gal.) Garay

vittatus Dutra ex Pabst = *Beadlea vittata* (Dutra ex Pabst) Garay

Warmingii (Rchb.f.) Schltr. = *Beadlea Warmingii* (Rchb.f.) Garay

Deiregyne Schltr. in Beih. Bot. Centralbl. 37(2): 426, 1920.

Etymology: *Deire* = neck and *gyne* = pistil, woman, in reference to the position of the sepals which sit perpendicularly on top of ovary as if it were a neck-like extension.

Sepals subsimilar, connivent with spreading apices; dorsal sepal partially adnate to column; lateral sepals decurrent on column-foot, together form a gibbous nectary. Petals agglutinate with dorsal sepal, sinuous, more or less decurrent at base. Lip arcuate, conduplicate at base with more or less thickened margins; margins of blade in middle agglutinate with sides of column, apex recurved. Column arcuate, partially adnate to dorsal sepal, basally with a decurrent, somewhat incurved foot, more or less sulcate in front; stigmata 2, confluent bilobed at apex; rostellum soft, laminar, longer than wide, from a broad base variously triangular, obtuse to subacuminate. Anther ovate, cucullate to umbonate, acute or obtuse; pollinia clavate with a small, round viscidium. Ovary more or less cylindrical to fusiform, sometimes twisted.

Plants variable, all facultative geophytes, commonly leafless during anthesis. Roots fasciculate, fleshy, tuberous. Leaves, when present, either basal or cauline, with a cuneate base. Stem erect, slender to robust, vaginate, terminated by a few- to many-flowered spike; sheath chartaceous, diaphanous. Flowers small to medium.

LECTOTYPE: *Spiranthes chloreaeformis* Rich. & Gal., in *hoc loco*.

14 species native to Mexico and Guatemala.

Index to species

Deiregyne albovaginata (C. Schweinf.) Garay, comb. nov.

Basionym: *Spiranthes albovaginata* C. Schweinf. in Bot. Mus. Leaf. 4: 103, 1937

Deiregyne chartacea (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes chartacea* L.O.Wms. in Bot. Mus. Leaf. 12: 226, 1946

chloreaeformis (Rich. & Gal.) Schltr. = *Deiregyne diaphana* (Lindl.) Garay
confusa Garay

Deiregyne dendroneura (Sheviak & Bye) Garay, comb. nov.

Basionym: *Spiranthes dendroneura* Sheviak & Bye in Brittonia 32: 368, 1980

Deiregyne diaphana (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes diaphana* Lindl. in Bot. Reg. 30: Misc. 12, 1844

Deiregyne durangensis (A. & S.) Garay, comb. nov.

Basionym: *Spiranthes durangensis* A. & S. in Bot. Mus. Leaf. 3: 128, 1935

Deiregyne eriophora (Robins. & Greenm.) Garay, comb. nov.

Basionym: *Spiranthes eriophora* Robins. & Greenm. in Amer. Journ. Sci. 50: 165, 1895

Deiregyne falcata (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes falcata* L.O.Wms. in Bot. Mus. Leaf. 12: 228, 1946

hemichrea (Lindl.) Schltr. = *Aulosepalum hemichrea* (Lindl.) Garay

hondurensis (Schltr.) Schltr. = *Gularia trilineata* (Lindl.) Garay

Deiregyne obtecta (C. Schweinf.) Garay, comb. nov.

Basionym: *Spiranthes obtecta* C. Schweinf. in Bot. Mus. Leaf. 4: 106, 1937

obtusa (Schltr.) Schltr. = *Aulosepalum Nelsonii* (Greenm.) Garay

pandurata Garay

Deiregyne pseudopyramidalis (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes pseudopyramidalis* L.O.Wms. in Bot. Mus. Leaf. 12: 232, 1946

pulchra (Schltr.) Schltr. = *Aulosepalum hemichrea* (Lindl.) Garay

ramentacea (Lindl.) Schltr. = *Aulosepalum ramentaceum* (Lindl.) Garay

rhombilabia Garay

Deiregyne tenella (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes tenella* L.O.Wms. in Bot. Mus. Leafl. 12: 235, 1946

Thelymitra (Rchb.f.) Schltr. = *Gularia trilineata* (Lindl.) Garay

trilineata (Lindl.) Schltr. = *Gularia trilineata* (Lindl.) Garay

Deiregyne velata (Robins. & Fern.) Garay, comb. nov.

Basionym: *Spiranthes velata* Robins. & Fern. in Proc. Amer. Acad. Sci. 30: 122, 1894

Dichromanthus Garay, gen. nov.

Etymology: Prefix *di-* = two, *chroma* = color and *anthos* = flower, signifying the nature of the flowers.

Sepala similia, conniventia, apicibus patentibus; sepalum posticum columna dorsaliter adnatum, basi decurrenti; sepala lateralia tantum pedem columnae adnata. Petala margine interiore sepalo intermedio agglutinata, sinuosa, basi decurrentia. Labelum sessile, basi canaliculato-conduplicatum, marginibus calloso-incrassatis, naviculare, laminae margines in medio utrinque lateribus columnae agglutinatae. Columna brevis, erecta, pede decurrenti, facie puberula; stigmata 2, confluentia, apice biloba; rostellum tenue, erectum, lineari-oblongum, apice rotunda. Anthera ovato-cucullata, acuta; pollinia clavata, viscidio elongato, oblongo-lineari affixa. Ovarium subcylindrico-fusiforme, paululum tortum.

Plantae terrestres, validae, erectae, sub anthesin vulgo foliosae; radicibus fasciculatis, stipitato-fusiformibus, carnosis; foliis paucis, vaginatis, precipue caulinis in parte inferiori caulium; caulibus erectis, supra vaginato-bracteolatis, spicis conicis vel cylindraeceis, dense multifloris; floribus magnis, speciosis bicoloribus, erectis, quaquaversalis.

Sepals similar, connivent, with flared apices; dorsal sepal adnate to column dorsally and decurrent on ovary; lateral sepals adnate only to column-foot. Petals sinuous, decurrent on column-foot. Lip sessile, conduplicate-channelled at base with thickened margins, lamina navicular with the sides in middle agglutinate with column. Column rather short, erect with a decurrent foot, pubescent in front; stigmata 2, confluent, bilobed at apex; rostellum soft, erect, linear-oblong, rounded at apex.

Anther ovate-cucullate, acute; pollinia clavate with an elongate, oblong-linear viscidium. Ovary subcylindric-fusiform, somewhat twisted.

Plants terrestrial, erect, commonly leafy during flowering time. Roots fasciculate, stipitately fusiform, fleshy. Leaves several, mostly cauline on lower part of stem, vaginate. Stem erect, vaginate-bracteate above, terminating in a conical to cylindric, densely many-flowered spike. Flowers large, showy, bicolored, erect, quaquaversal.

TYPE: *Neottia cinnabarina* Llave & Lex.

One species native to Mexico and Guatemala.

Index to species

Dichromanthus cinnabarinus (Llave & Lex.) Garay, comb. nov.

Basionym: *Neottia cinnabarina* Llave & Lex., Nov. Veg. Desc. 2, Orch. Op. 3, 1825.

Dikylikostigma Krzl.

Preussii Krzl. = *Discyphus scopulariae* (Rchb.f.) Schltr.

Discyphus Schltr. in Fedde, Rep. 15: 417, 1919.

Etymology: Prefix *Di* = two and *skyphos* = cup, in reference to the nature of the stigmata, which are terminal and in dry condition form distinct cup-like cavities.

Syn.: *Dikylikostigma* Krzl. in Notizbl. Bot. Gart. Berlin 7: 321, 1919.

Type: *Dikylikostigma Preussii* Krzl.

Sepals subsimilar, ringent; dorsal sepal deeply concave, basally fuse with lateral sepals for a short distance; lateral sepals connate at base, long-decurrent on column-foot, together form an internal, cyathiform nectary. Petals somewhat sinuous, free from dorsal sepal, with a decurrent base. Lip long-clawed, the claw fully adnate to connate part of lateral sepals, fleshy sagittate at base. Column short, conduplicate-furrowed in front, basally produced in a long-decurrent, incurved foot; stigmata 2, terminal on top of truncate column, cupuliform, well separated by the frontal furrow of column; rostellum arrect, deeply bifid to

bicuspidate. Anther ovate, acute; pollinia clavate with narrowly elliptic viscidium. Ovary arcuately cylindric, twisted.

Terrestrial, small plants with fasciculate, fusiform roots. Leaf cordate, basal, horizontal on soil. Stem erect, pilose, terminated by a subdensely many-flowered spike. Flowers small, glandulose-pilose.

TYPE: *Spiranthes scopulariae* Rchb.f.

One species, native to Panama, Venezuela, Trinidad and Brazil.

Index to species

scopulariae (Rchb.f.) Schltr.

Dithyridanthus Garay, gen. nov.

Etymology: *Di-* = prefix, two, *thyridos* = small windows and *anthos* = flower, describing the two lateral openings formed by the dorsal and lateral sepals at the base of the flower.

Sepala subsimilia, conniventia, leviter arcuata, ad basin urceolatim extensa, utrinque aperturam quasi fenestram basalem formantia; sepala lateralia inter se breviter connata, ungue labelli dorsaliter adnata, et cum eo saccum didymum satis conspicuum formantia. Petala margine interiore sepalo intermedio agglutinata, linearia. Labellum carnosum, satis longe unguiculatum, ungue ad basin columnae arcuatim decurvo, sepalis lateralibus adnato et cum iis mentum prominens ostendenti; lamina labelli unguem rectangulariter inserta, conduplicata, apice recurva, basi excavato-gibbosa, margine in medio utrinque lateribus columnae modice agglutinata. Columna apici ovarii rectangulariter inserta, satis brevis, arcuata, basi obliqua sed apoda, dorsaliter sepalo intermedio adnata, facie puberula; stigmata 2, longitudinaliter elliptica, confluentia, apice biloba; rostellum satis rigidum, oblongo-lineare acuminatum, satis elongatum. Anthera ovata, umbonata, acuta; pollinia clavata, glandula lineari-oblonga affixa. Ovarium cylindricum, paululo tortum, apice arcuato-colliforme.

Plantae terrestres, elatae; radicibus fasciculatis, stipitato-fusiformibus, carnosis; foliis caulinis, sursum in vaginis trans-euntibus; inflorescentia cylindrica, spicata, dense multiflora; floribus quaquaversis, in bracteas chartaceas, pulchre venosas omnino absconditis.

Sepals subsimilar, connivent, somewhat arcuate, basally enlarged like an urn, on both sides of the flower at base becoming separated and form an opening like small windows; lateral sepals connate at base and adnate dorsally to claw of lip, together they form a rather prominent didymous sac. Petals linear, with the interior margins agglutinate with dorsal sepal. Lip fleshy, rather long clawed; claw arcuately recurved from base of column, fused with lateral sepals, together they display a prominent mentum; blade of lip inserted rectangularly to claw, conduplicate with a recurved apex, basally excavate-gibbose, the margins in the middle somewhat agglutinate with sides of column. Column rectangularly inserted on top of ovary, rather short, arcuate, with an oblique base, footless!, dorsally adnate to dorsal sepal, pubescent in front; stigmata 2, longitudinally elliptic, confluent, with a bilobed apex; rostellum rather rigid, oblong-linear, acuminate, quite elongate. Anther ovate, umbo-nate, acute; pollinia clavate, affixed to linear-oblong viscidium. Ovary cylindric, somewhat twisted, with an arcuate neck-like extension.

Plants terrestrial, rather robust, tall, with fasciculate, stipitate-fusiform roots; leaves cauline, becoming bract-like upwards; inflorescence cylindric, spicate, densely many-flowered; flowers all-sided, completely hidden in large, rather attractively veined, chartaceous bracts.

TYPE: *Spiranthes densiflora* C. Schweinf.

One species native to Mexico

Index to species

Dithyridanthus densiflorus (C. Schweinf.) Garay, comb. nov.

Basionym: *Spiranthes densiflora* C. Schweinf. in Bot. Mus. Leaflet 4: 104, 1937.

Eltropectris Raf., Fl. Tellur. 2:51, 1837.

Etymology: *Eltro*, a corrupt form of *eleutheros* = free and *pectron* = spur, in reference to the spur-like process formed by the lateral sepals with the free-projecting column-foot.

Syn.: *Centrogenium* Schltr. in Beih. Bot. Centralbl. 37(2): 451, 1920.

Lectotype: *Neottia calcarata* Sw. [Correa in Darwiniana 11: 81, 1955]

Sepals free, unequal in size, somewhat spreading; lateral sepals longer than dorsal sepal, decurrent on column-foot and with free part of column-foot form a pendulous, spur-like process. Petals agglutinate with dorsal sepal, basally decurrent on column. Lip membranaceous, with a distinct claw, arcuately recurved, towards base with marginal thickenings, somewhat shorter than sepals. Column slender, rather short, erect, basally extended into a long column-foot which at first adnate to ovary then freely protruding from ovarian tissue; stigmata 2, free to approximate, but never confluent, terminal, horizontal, often appear bilobed, more or less separated from one another by terminal edge of a distinct fold running full length on face of column; rostellum rigid, more or less cartilaginous, subulate to linear, sharply pointed. Anther ovate-cucullate, persistent; pollinia clavate with an oblong viscidium. Ovary cylindric, sessile or subsessile.

Terrestrial, erect herbs with fleshy, fasciculate roots. Leaves one to several, basal, petiolate, occasionally withering during anthesis. Stem slender, erect, vaginate, terminated by a few- to many-flowered, lax raceme or spike. Flowers variable in size.

TYPE: *Neottia calcarata* Sw.

Ten species native to the American tropics and subtropics.

Index to species.

acuminata Raf. = *Eltropectris calcarata* (Sw.) Garay & Sweet

calcarata (Sw.) Garay & Sweet

Cogniauxiana (Schltr.) Pabst

janeirensis (Porto & Brade) Pabst

Kuhlmanniana (Hoehne) Pabst

longicornu (Cogn.) Pabst

lurida (Correa) Pabst = *Pteroglossa lurida* (Correa) Garay

macrophylla (Schltr.) Pabst

pauciflora (Poepp. & Endl.) Garay

roseoalba (Rchb.f.) Hamer & Garay

Schlechterana (Porto & Brade) Pabst

Eltroplectris Travassosii (Rolfe) Garay, comb. nov.

Basionym: *Pelexia Travassosii* Rolfe in Gard. Chron. ser. 3, 11: 330, 1892.

triloba (Lindl.) Pabst

Epidendrum L.

Aristotelia Raesch. = *Spiranthes sinensis* (Pers.) Ames

Epipactis Zinn

diuretica (Willd.) Stokes = *Brachystele unilateralis* (Poir.) Schltr.

spiralis (L.) Crantz = *Spiranthes spiralis* (L.) Chevall.

Erythodes Bl.

pauciflora (Poepp. & Endl.) Ames = *Eltroplectris pauciflora* (Poepp. & Endl.) Garay

Eurystyles Wawra in Oesterr. Bot. Zeitschr. 13: 223, 1863.

Etymology: *Eurys* = broad and *stylis* = pillar, column, describing the shape of the column which in the original material unfortunately was deformed.

Syn.: *Trachelosiphon* Schltr. in Beih. Bot. Centralbl. 37(2): 423, 1920.

Lectotype: *Spiranthes actinosophila* Barb.Rodr. [Acuña in Bol. Tec. 60: 43, 1939]

Pseudoëurystyles Hoehne in Arqu. Est. S. Paulo, n.s.form.m. 1: 129, 1944.

Lectotype: *Stenoptera Lorenzii* Cogn. [Angely, Fl. Analit. S. Paulo 6: 1273, 1973]

Sepals dissimilar, basally connate into a tube, always cristate-carinate along midvein externally; dorsal sepal with a decurrent base, partially adnate to column; lateral sepals connate at base forming a ventricose to didymous sac to which the claw of lip is adnate internally. Petals internally agglutinate with dorsal sepal, decurrent at base. Lip canaliculate, parallel with column, broadly unguiculate, saggitate-auriculate at base, claw fused with inflated part of lateral sepals, together they form an internal nectary. Column slender, elongate, with a long, decurrent,

incurved foot; stigmata 2, approximate to confluent; rostellum laminar, erect, membranaceous, acute to obtuse. Anther ovate-cucullate, acute; pollinia clavate with a small, roundish viscidium. Ovary sessile, very slightly twisted, sometimes colliferous at apex.

Plants small to miniature, facultative epiphytes, growing on branches of trees, with slender, fleshy roots. Leaves basal, rosulate, with ciliate to hairy blades. Scape short, erect to arcuately pendent, few-sheathed, terminated by a densely compact, capitate spike. Flowers small to minute, mostly hidden by large, ciliolate bracts.

TYPE: *Eurystyles cotyledon* Wawra

13 species native to regions of New World tropics.

Index to species

actinosophila (Barb.Rodr.) Schltr.

alticola Dod = *Eurystyles auriculata* Schltr.

ananassocomus (Rehb.f.) Schltr.

auriculata Schltr.

borealis A.H. Heller

Cogniauxii (Krzl.) Schltr.

colombiana (Schltr.) Schltr.

Cotyledon Wawra

cristata (Schltr.) Schltr.

domingensis Dod = *Eurystyles Gardneri* (Lindl. ex Gardn.) Garay

Gardneri (Lindl. ex Gardn.) Garay

Eurystyles Guentherana (Krzl.) Garay, comb. nov.

Basionym: *Stenoptera Guentherana* Krzl. in Fedde, Rep. 25: 19, 1928.

Lorenzii (Cogn.) Schltr.

paranaënsis (Schltr.) Schltr.

Standleyi Ames

Funckiella Schltr. in Beih. Bot. Centralb. 37(2): 430, 1920, orthogr. correct.

Etymology: In honor of Nicolas Funck (1816–1896), a Belgian explorer and avid orchid collector who in commercial circles was known by the affectionate name, “l’Oncle Funck”.

Sepals dissimilar, horizontal, subparallel to ringent; dorsal sepal partially adnate to back of column; lateral sepals oblique

at base, somewhat enlarged, together with gibbose-saccate base of lip form an obtuse mentum. Petals agglutinate with dorsal sepal, at most oblique at base. Lip conduplicate, arcuate, lower half rather fleshy, excavate-gibbose at base with marginal thickenings and continuous with the incurved column-foot. Column rather slender, horizontal to suberect, with a short, incurved foot; stigmata 2, confluent; rostellum filiform, thin, pliable. Anther ovate-cordate, acute; pollinia clavate with a linear-oblong viscidium. Ovary cylindric, barely twisted.

Terrestrial, large plants with fasciculate, fleshy roots or tubers. Leaves, when present, basal, few. Scape erect, vaginate, terminated by a loosely few-flowered, commonly secund spike. Flowers large, horizontal.

TYPE: *Spiranthes hyemalis* Rich. & Gal.

Three species native to Mexico and Guatemala.

Index to species

Funckiella congestiflora (L.O. Wms.) Garay, comb. nov.

Basionym: *Spiranthes congestiflora* L.O. Wms. in Bot. Mus. Leaflet. 12: 227, 1946.

hyemalis (Rich. & Gal.) Schltr.

Funckiella stolonifera (Ames & Correll) Garay, comb. nov.

Basionym: *Spiranthes stolonifera* Ames & Correll in Bot. Mus. Leaflet. 10: 63, 1942.

Galeottiella Schltr. in Beih. Bot. Centralbl. 37 (2): 360, 1920.

Etymology: In honor of Henri-Guillaume Galeotti (1814–1858) who collected extensively in Mexico, especially orchids, between December 1835 and June 1840.

Sepals dissimilar, erect; dorsal sepal deeply concave, halfway adnate to back of column; lateral sepals long-decurrent on column-foot, basally somewhat connate, together with incurved tip of column-foot form an internal nectary, apices spreadingly revolute. Petals narrow, interior margins agglutinate with dorsal sepal, anterior margin thickened, ciliolate. Lip spatulate-cochleate, very fleshy with thin margins, sessile, parallel with column, somewhat gibbose at base. Column slender with a rectangularly bent apex and an incurved foot; stigmata 2, approxi-

mate; rostellum distinctly bilobed, with broad, obtuse lobules. Anther ovate-quadrate, blunt; pollinia clavate with a small, elliptic, fleshy viscidium which tightly fits between the rostellar lobes. Ovary cylindric, sessile, somewhat twisted.

Terrestrial, erect plants with fasciculate, fleshy roots. Leaves cauline, decreasing in size upwards. Stem erect, terminated by loosely many-flowered, allsided or subsecund spike. Flowers small.

TYPE: *Spiranthes sarcoglossa* Rich. & Gal.

One species native to Mexico and Guatemala.

Index to species

sarcoglossa (Rich. & Gal.) Schltr.

Gamosepalum Schltr.

tenuiflorum (Greenm.) Schltr. = *Aulosepalum tenuiflorum* (Greenm.) Garay

Goodyera R. Br.

erythrosticta Griseb. = *Pseudogoodyera Wrightii* (Rchb.f.) Schltr.

guayanensis Lindl. = *Brachystele guayanensis* (Lindl.) Schltr.

Wrightii Rchb.f. = *Pseudogoodyera Wrightii* (Rchb.f.) Schltr.

Gularia Garay, gen. nov.

Etymology: *Gula* = gullet, throat, in reference to the appearance of the tubular flower.

Sepala dissimilia, basin inter se connata, tubum formantia; sepalum posticum columnae dorsaliter adnatum, concavum; sepala lateralialia decurrentia, cum pede columnae nectarium oblique cylindricum formantia, apicibus paululo divergentibus. Petala sepalo postico conniventia et cum eo margine interiore agglutinata, basi decurrentia. Labellum longe unguiculatum, ungue basi sepalorum lateralium adnatum, deinde auriculatum vel sagittatum, apice carnosum, paululo recurvum, in medio laminae margines lateribus columnae arcte agglutinatum. Columna elongata, gracilis, apicem versus sensim dilatata, facie puberula, basi in pedem longam, decurrentem producta; stigmata 2, confluentia, apice obscure biloba; rostellum erectum, tenue, triangulare, acutum. Anthera ovata, cucullata, acuta; pollinia clavata, viscidio ovato. Ovarium cylindricum, tortum.

Plantae terrestres, spithameae, sub anthesin aphyllae; radicibus fasciculatis, tuberoso-fusiformibus; foliis ut videtur basilari-bus; caulibus erectis, chartaceo-vaginatibus, supra laxè spicatis, paucifloris; floribus erectis, quaquaversis.

Sepals dissimilar, basally connate into a tube; dorsal sepal concave, adnate to back of column; lateral sepals decurrent on column-foot, and together form an obliquely cylindric nectary, the apices somewhat divergent. Petals connivent with dorsal sepal, the inner margins agglutinate with it, decurrent at base. Lip with a long claw which is adnate to the connate base of lateral sepals, blade auriculate or sagittate at base, fleshy at the slightly recurved apex, the margins in the middle agglutinate with sides of column. Column elongate, slender, somewhat expanding upwards, with a puberulent front, basally produced in a long, decurrent foot; stigmata 2, confluent, obscurely bilobed at apex; rostellum erect, pliable, triangular, acute. Anther ovate, cucullate, acute; pollinia clavate with an ovate viscidium. Ovary cylindric, twisted.

Terrestrial, small plant, aphyllous during anthesis. Roots fasciculate, tuberous-fusiform; Leaves absent during flowering time, appear to be rosulate from remnants. Stem erect, slender, heavily chartaceous-vaginate, terminated by a loosely few-flowered spike. Flowers of medium size, all-sided, erect on top of ovary.

TYPE: *Spiranthes trilineata* Lindl.

Two species native to Mexico and Guatemala.

Index to species

Gularia crenulata (L.O. Wms.) Garay, comb. et stat. nov.

Basionym: *Spiranthes trilineata* var. *crenulata* L.O. Wms. in Bot. Mus. Leaflet 12:36, 1946.

Gularia trilineata (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes trilineata* Lindl. in Benth., Pl. Hartweg. 94, 1842.

Gyrostachys Pers. ex Bl.

acutata (Rchb.f. & Warm.) O. Ktze. = *Sarcoglottis acutata* (Rchb.f. & Warm.) Garay

aestivalis (Poir.) Dumort. = *Spiranthes aestivalis* (Poir.) L.C. Rich.

aguacatensis (Rchb.f.) O. Ktze. = *Brachystele guayanensis* (Lindl.) Schltr.

amoena (Bieb.) Bl. = *Spiranthes amoena* (Bieb.) Spreng.
aphylla (Hook.) O. Ktze. = *Sacoila lanceolata* (Aubl.) Garay
apiculata (Lindl.) O. Ktze. = *Spiranthes torta* (Thunb.) Garay & Sweet
aprica (Lindl.) O. Ktze. = *Beadlea aprica* (Lindl.) Garay
Arrabidae (Rchb.f.) O. Ktze. = *Pelexia Arrabidae* (Rchb.f.) Garay
assurgens (Rchb.f.) O. Ktze. = *Sarcoglottis assurgens* (Rchb.f.) Schltr.
aurantiaca (Llave & Lex.) O. Ktze. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.
australis (R. Br.) Bl. = *Spiranthes sinensis* (Pers.) Ames
auctumnalis Bl. = *Spiranthes spiralis* (L.) Chevall.
autumnalis (Balb.) Dumort. = *Spiranthes spiralis* (L.) Chevall.
balanophorostachya (Rchb.f.) O. Ktze. = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
Beckii (Lindl.) Stone = *Spiranthes lacera* (Raf.) Raf.
bicolor (Ker-Gawl.) O. Ktze. = *Beadlea bicolor* (Ker-Gawl.) Garay
bonariensis (Lindl.) O. Ktze. = *Pelexia bonariensis* (Lindl.) Schltr.
bracteosa (Lindl.) O. Ktze. = *Brachystele bracteosa* (Lindl.) Schltr.
brevifolia (Chapm.) O. Ktze. = *Spiranthes longilabris* Lindl.
brevilabris (Lindl.) O. Ktze. = *Spiranthes brevilabris* Lindl.
camporum (Lindl.) O. Ktze. = *Brachystele camporum* (Lindl.) Schltr.
cernua (L.) O. Ktze. = *Spiranthes cernua* (L.) L.C. Rich.
chilensis (A. Rich.) O. Ktze. = *Odontorrhynchus chilensis* (A. Rich.) Garay
chloreaeformis (Rich. & Gal.) O. Ktze. = *Deiregyne diaphana* (Lindl.) Garay
chlorops (Rchb.f.) O. Ktze. = *Odontorrhynchus chlorops* (Rchb.f.) Garay
cinnabarina (Llave & Lex.) O. Ktze. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
Cogniauxii O. Ktze. = *Pelexia comosa* (Cogn.) Schltr.
comosa (Rchb.f.) O. Ktze. = *Beadlea comosa* (Rchb.f.) Hamer & Garay
congesta (Lindl.) O. Ktze. = *Spiranthes congesta* Lindl.
constricta Small = *Spiranthes odorata* (Nutt.) Lindl.
costaricensis (Rchb.f.) O. Ktze. = *Beloglottis costaricensis* (Rchb.f.) Schltr.
cuculligera (Rchb.f. & Warm.) O. Ktze. = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.
cuspidata (Lindl.) O. Ktze. = *Mesadenella cuspidata* (Lindl.) Garay
dilatata (Lindl.) O. Ktze. = *Brachystele dilatata* (Lindl.) Schltr.
ensifolia (Rchb.f.) O. Ktze. = *Spiranthes vernalis* Engelm. & Gray
Eugenii (Rchb.f. & Warm.) O. Ktze. = *Beadlea Eugenii* (Rchb.f. & Warm.) Garay
Funckiana (Rich. & Gal.) O. Ktze. = *Pelexia Funckiana* (Rich. & Gal.) Schltr.
gemmipara (J.E.Sm.) O. Ktze. = *Spiranthes Romanzoffiana* Cham.
gracilis (Bigel.) O. Ktze. = *Spiranthes lacera* (Raf.) Raf.
graminea (Lindl.) O. Ktze. = *Spiranthes graminea* Lindl.
grandiflora (Lindl.) O. Ktze. = *Sarcoglottis grandiflora* (Lindl.) Kl.
Grayi (Ames) Britton = *Spiranthes tuberosa* Raf.
gutturosa (Rchb.f.) O. Ktze. = *Pelexia gutturosa* (Rchb.f.) Garay
Haenkeana O. Ktze. = *Beadlea peruviana* (Presl) Garay
hemichrea (Lindl.) O. Ktze. = *Aulosepalum hemichrea* (Lindl.) Garay
hirta (Lindl.) O. Ktze. = *Pelexia hirta* (Lindl.) Schltr.
homalogastra (Rchb.f. & Warm.) O. Ktze. = *Sarcoglottis homalogastra* (Rchb.f. & Warm.) Schltr.

Hostmannii (Rchb.f.) O. Ktze. = *Brachystele guayanensis* (Lindl.) Schltr.
inaequilatera (Poepp. & Endl.) O. Ktze. = *Beadlea inaequilatera* (Poepp. & Endl.) Garay
laciniata Small = *Spiranthes laciniata* (Small) Ames
lanceolata (Aubl.) O. Ktze. = *Sacoila lanceolata* (Aubl.) Garay
latifolia (Torr.) O. Ktze. = *Spiranthes lucida* (H.H.Eaton) Ames
linearis Rydb. = *Spiranthes vernalis* Engelm. & Gray
lineata (Lindl.) O. Ktze. = *Hapalorchis lineatus* (Lindl.) Schltr.
Lindleyana (Link, Kl., & Otto) O. Ktze. = *Beadlea Lindleyana* (Link, Kl. & Otto) Garay & Dunsterv.
longilabris (Lindl.) O. Ktze. = *Spiranthes longilabris* Lindl.
longipetiolata (Rchb.f.) O. Ktze. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
lupulina (Lindl.) O. Ktze. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.
macrantha (Rchb.f.) O. Ktze. = *Pteroglossa macrantha* (Rchb.f.) Schltr.
macrostachya (Poepp. & Endl.) O. Ktze. = *Stenoptera macrostachya* (Poepp. & Endl.) Rchb.f.
madrensis (Rchb.f.) O. Ktze. = *Stenorrhynchos michuacatum* (Llave & Lex.) Lindl.
Mandonii (Rchb.f.) O. Ktze. = *Pelexia Mandonii* (Rchb.f.) Schltr.
michuacana (Llave & Lex.) O. Ktze. = *Stenorrhynchos michuacatum* (Llave & Lex.) Lindl.
minor (Jacq.) O. Ktze. = *Beadlea elata* (Sw.) Small
minutiflora (Rchb.f.) O. Ktze. = *Beadlea peruviana* (Presl) Garay
montana (Lindl.) O. Ktze. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
nesophila (Rchb.f.) O. Ktze. = *Basionym unknown!*
neuroptera (Rchb.f. & Warm.) O. Ktze. = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.
novofriburgensis (Rchb.f.) O. Ktze. = *Pelexia novofriburgensis* (Rchb.f.) Garay
ochroleuca Rydb. = *Spiranthes ochroleuca* (Rydb.) Rydb.
odorata (Nutt.) O. Ktze. = *Spiranthes odorata* (Nutt.) Lindl.
oestrifera (Rchb.f. & Warm.) O. Ktze. = *Pelexia oestrifera* (Rchb.f. & Warm.) Schltr.
orchioides (Sw.) O. Ktze. = *Sacoila lanceolata* (Aubl.) Garay
orthosepala (Rchb.f. & Warm.) O. Ktze. = *Pelexia orthosepala* (Rchb.f. & Warm.) Schltr.
ovalifolia (Presl) O. Ktze. = *Cyclopogon ovalifolium* Presl
ovalis (Lindl.) O. Ktze. = *Spiranthes ovalis* Lindl.
papulosa (Lindl.) O. Ktze. = *Stenorrhynchos papulosum* (Llave & Lex.) Lindl.
parviflora (Chapm.) Small = *Spiranthes ovalis* Lindl.
pauciflora (Rchb.f.) O. Ktze. = *Funckia hyemalis* (Rich. & Gal.) Schltr.
peruviana (Aubl.) O. Ktze. = *Spiranthes torta* (Thunb.) Garay & Sweet
picta (Anders.) O. Ktze. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
plantaginea (Don) O. Ktze. = *Malaxis latifolia* J.E.Sm.
plantaginea (Torr.) Britt. & Br. = *Spiranthes lucida* (H.H. Eaton) Ames
polyantha (Rchb.f.) O. Ktze. = *Mesadenus polyanthus* (Rchb.f.) Schltr.

porrifolia (Lindl.) O. Ktze. = *Spiranthes porrifolia* Lindl.
 praecox (Walt.) O. Ktze. = *Spiranthes praecox* (Walt.) Wats.
 prasophylla (Rchb.f.) O. Ktze. = *Beadlea Prasophyllum* (Rchb.f.) Hamer
 & Garay
 pterygantha (Rchb.f. & Warm.) O. Ktze. = *Pelexia pterygantha* (Rchb.f. &
 Warm.) Schltr.
 pyramidalis (Lindl.) O. Ktze. = *Kionophyton pyramidalis* (Lindl.) Garay
 ramentacea (Lindl.) O. Ktze. = *Aulosepalum ramentaceum* (Lindl.) Garay
 Reverchonii Small = *Spiranthes vernalis* Engelm. & Gray
 Romanzoffiana (Cham.) MacMill. = *Spiranthes Romanzoffiana* Cham.
 rupestris (Lindl.) O. Ktze. = *Skeptrostachys rupestris* (Lindl.) Garay
 saccata (Rich. & Gal.) O. Ktze. = *Beadlea saccata* (Rich. & Gal.) Garay
 sagittata (Rchb.f. & Warm.) O. Ktze. = *Sarcoglottis sagittata* (Rchb.f. &
 Warm.) Schltr.
 sancta (Rchb.f. & Warm.) O. Ktze. = *Pelexia sancta* (Rchb.f. & Warm.)
 Garay
 sarcoglossa (Rich. & Gal.) O. Ktze. = *Galeottiella sarcoglossa* (Rich. &
 Gal.) Schltr.
 Sarcoglottis O. Ktze. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
 sceptrodes (Rchb.f.) O. Ktze. = *Sarcoglottis sceptrodes* (Rchb.f.) Schltr.
 Schaffneri (Rchb.f.) O. Ktze. = *Pelexia Schaffneri* (Rchb.f.) Schltr.
 scopulariae (Rchb.f.) O. Ktze. = *Discyphus scopulariae* (Rchb.f.) Schltr.
 simplex (A. Gray) O. Ktze. = *Spiranthes tuberosa* Raf.
 Smithii (Rchb.f.) O. Ktze. = *Pelexia Smithii* (Rchb.f.) Garay
 speciosa (Jacq.) O. Ktze. = *Stenorrhynchos speciosum* (Jacq.) L.C. Rich
 ex Spreng.
 spiralis (L.) O. Ktze. = *Spiranthes spiralis* (L.) Chevall.
 Stenorrhynchos O. Ktze. = *Sacoila lanceolata* (Aubl.) Garay
 stricta Rydb. = *Spiranthes Romanzoffiana* Cham.
 stylites (Lindl.) O. Ktze. = *Spiranthes stylites* Lindl.
 sulfurea (Llave & Lex.) O. Ktze. = *Stenorrhynchos michuacanum* (Llave &
 Lex.) Lindl.
 tenuis (Lindl.) O. Ktze. = *Spiranthes tenuis* Lindl.
 Thelymitra (Rchb.f.) O. Ktze. = *Gularia trilineata* (Lindl.) Garay
 trilineata (Lindl.) O. Ktze. = *Gularia trilineata* (Lindl.) Garay
 triloba Small = *Spiranthes odorata* (Nutt.) Lindl.
 truncata (Lindl.) O. Ktze. = *Beadlea truncata* (Lindl.) Garay
 unilateralis (Poir.) O. Ktze. = *Brachystele unilateralis* (Poir.) Schltr.
 vaginata (H.B.K.) O. Ktze. = *Stenorrhynchos vaginatum* (H.B.K.) Spreng.
 vernalis (Engelm. & Gray) O. Ktze. = *Spiranthes vernalis* Engelm. & Gray
 villosa (Poepp. & Endl.) O. Ktze. = *Sarcoglottis villosa* (Poepp. & Endl.)
 Schltr.
 Warmingii (Rchb.f.) O. Ktze. = *Beadlea Warmingii* (Rchb.f.) Garay
 Wightiana (Lindl.) O. Ktze. = *Spiranthes Wightiana* Lindl.
 xyridifolia Small = *Spiranthes vernalis* Engelm. & Gray

Hapalorchis Schltr. in Fedde, Rep, Beih. 6: 30, 1919.

Etymology: *Hapalos* = delicate, soft and *orchis* = orchid, in reference to the delicate texture of the entire plant.

Sepals free, similar, parallel to subparallel, ringent; lateral sepals somewhat oblique, more or less gibbose at base, together with the base of the lip form a short, rounded mentum. Petals connivent with dorsal sepal and the interior margin firmly agglutinate to it. Lip sessile with a concave, excavate base which is often obscurely didymous, and marginally thickened without forming free calli; blade conduplicate-canaliculate with a terminal lobe. Column slender, papillose to pubescent in front, obliquely extended at base on top of ovary; stigmata 2, confluent, bilobed at apex; rostellum suberect, oblong-subtriangular to ligulate, pliable, longer than wide, excised at apex; clinandrium lobulate, infundibuliform. Anther erect, deeply concave to cucullate, with a cordate base, acuminate towards apex; pollinia clavate with an ovate to oblanceolate viscidium. Ovary sessile to subsessile.

Terrestrial, delicate plants. Roots fleshy, tuber-like, originating from distant to more or less approximate nodes. Leaves mostly congested at base, petiolate, vaginate at base. Stem ascending from a rhizomatous or subrhizomatous base, slender, terminated by a few-flowered, secund spike. Flowers delicate in texture, commonly outcrossing, rarely autogamous.

TYPE: *Hapalorchis cheirostyloides* Schltr.

9 species native to American tropics and subtropics.

Index to species

candidus (Krzl.) Schltr.
cheirostyloides Schltr.
Lindleyanus Garay
lineatus (Lindl.) Schltr.
longirostris Schltr.
micranthus (Barb. Rodr.) Hoehne
pauciflorus Porto & Brade
pumilus (C. Schweinf.) Garay
rhombiglossus Pabst = *Mesadenus rhombiglossus* (Pabst) Garay

tenuis (Lindl.) Schltr. = *Hapalorchis lineatus* (Lindl.) Schltr.
trilobata Schltr.

Helonoma Garay, gen. nov.

Etymology: *Helonomos* = living in a marsh or bog, describing the habitat of the plants.

Sepala similia, inter se satis alte connata, nectarium vel tubum amplum formantia, apicibus patentibus; sepalo postico columnae dorsaliter adnato; sepalis lateralibus obliquis, antice paululo ampliatis. Petala sepalo postico partim agglutinata, basi leviter decurrentia. Labellum longe unguiculatum, ungue tubo sepalino omnino adnato, deinde sagittatum, marginibus in medio utrinque columnae lateribus agglutinis. Columna erecta vel suberecta, dorsaliter sepalo postico satis alte adnata, apice libera, basi in pedem brevem apici ovarii oblique producta; stigmata 2, vulgo separata, sese haud tigentia; rostellum breve, obtusum, plerumque in floribus autogamis dissolutum. Anthera ovato-lanceolata, cucullata, acuminata; pollinia lineari-clavata, viscidio parvulo, rotundo affixa. Ovarium fusiforme, sessile, haud tortum.

Plantae terrestres, vulgo autogamae, graciles, spithameae vel ultra; radicibus cylindraceis, carnosiss, pubescentibus; foliis basilibus, petiolatis; caulibus e rhizomate brevi decumbenti erectis vel suberectis, remote pauci-bracteatis, apice laxe denseque spicatis; floribus parvulis.

Sepals similar, basal half connate into a more or less broadly tubular nectary, apical half with spreading segments; dorsal sepal adnate to back of column; lateral sepals somewhat oblique and extended basally. Petals for the most part, especially the inner margins agglutinate with dorsal sepal, basally somewhat decurrent. Lip with a long claw which is fully adnate to fused part of lateral sepals, then expanded into a sagittate blade, the sides of which agglutinate with column. Column erect to suberect, to base of clinandrium adnate to dorsal sepal, basally produced in a short, oblique foot on top of ovary, in front with a longitudinal groove; stigmata 2, commonly free with sides hardly touching one another; rostellum short, triangular, obtuse, mostly ruptured or dissolved in autogamous flowers. Anther ovate-lanceolate, cucullate, acuminate at apex; pollinia linear-

clavate, with a small, round viscidium. Ovary fusiform, sessile, hardly twisted.

Terrestrial, slender plants, commonly autogamous. Roots cylindric, slender, fleshy, pubescent. Leaves basal, petiolate. Stem from a decumbent, short rhizome, erect or suberect, remotely few-bracteate, terminated by a loosely to densely flowered spike. Flowers small.

TYPE: *Manniella americana* C. Schweinf. & Garay

Two species native to South America, in the Venezuela-Guayana Massif.

Index to species

Helonoma americana (C. Schweinf. & Garay) Garay, comb. nov.

Basionym: *Manniella americana* C. Schweinf. & Garay in Bot. Mus. Leaflet 20:5, 1962.

Helonoma bifida (Ridl.) Garay, comb. nov.

Basionym: *Spiranthes bifida* Ridl. in Thimeri 5: 105, 1886.

Ibidium Salisb. ex Small

Beckii (Lindl.) House = *Spiranthes lacera* (Raf.) Raf.

cernuum (L.) House = *Spiranthes cernua* (L.) L.C. Rich.

coloratum (N.E.Br.) House = *Stenorrhynchos speciosum* (Jacq.) L.C. Rich.
ex Spreng.

crystalligerum Salisb. = *Sacoila lanceolata* (Aubl.) Garay

elatum (Sw.) Salisb. = *Beadlea elata* (Sw.) Small

floridanum Wherry = *Spiranthes floridana* (Wherry) Cory

gracile (Bigel.) House = *Spiranthes lacera* (Raf.) Raf.

incurvum Jennings = *Spiranthes cernua* (L.) L.C. Rich.

X *intermedium* (Ames) House = *Spiranthes* X *intermedia* Ames

laciniatum (Small) House = *Spiranthes laciniata* (Small) Ames

longilabre (Lindl.) House = *Spiranthes longilabris* Lindl.

lucayanum Britt. = *Mesadenus lucayanus* (Britt.) Schltr.

ochroleucum (Rydb.) House = *Spiranthes ochroleuca* (Rydb.) Rydb.

odoratum (Nutt.) House = *Spiranthes odorata* (Nutt.) Lindl.

ovale (Lindl.) House = *Spiranthes ovalis* Lindl.

parviflorum (Chapm.) Jennings = *Spiranthes ovalis* Lindl.

plantagineum (Raf.) House = *Spiranthes lucida* (H.H. Eaton) Ames

porrifolium (Lindl.) Rydb. = *Spiranthes porrifolia* Lindl.

praecox (Walt.) House = *Spiranthes praecox* (Walt.) Wats.

quinquelobatum (Poir.) J. Acuña = *Spiranthes torta* (Thunb.) Garay
& Sweet

Romanzoffianum (Cham.) House = *Spiranthes Romanzoffiana* Cham.

speciosum (Jacq.) Salisb. = *Stenorrhynchos speciosum* (Jacq.) L.C. Rich.
ex Spreng.

spirale (Lour.) Makino = *Spiranthes sinensis* (Pers.) Ames
 spirale (L.) Salisb. = *Spiranthes spiralis* (L.) Chevall.
 strictum (Rydb.) House = *Spiranthes Romanzoffiana* Cham.
 tortile (Sw.) House = *Spiranthes torta* (Thunb.) Garay & Sweet
 trilobum Small = *Spiranthes odorata* (Nutt.) Lindl.
 vernalis (Engelm. & Gray) House = *Spiranthes vernalis* Engelm. & Gray
 viridiflorum (Makino) Makino = *Spiranthes sinensis* (Pers.) Ames
 xyridifolium (Small) Small = *Spiranthes vernalis* Engelm. & Gray

Kionophyton Garay, gen. nov.

Etymology: *Kion* = pillar, column and *phyton* = plant, in allusion to the pillar-like base of stem below the spreading leaves.

Sepala plus minusve similia, basi connata, nectarium amplum, interdum quasi inflatum formantia, apicibus patentibus; sepalo postico columnae dorsaliter leviter adnato; sepalis lateralibus, obliquis basi connatis ampliatisque, mentum rotundum formantibus. Petala sinuosa, sepalo postico agglutinata, basi obliqua. Labellum breviter unguiculatum, ungue basibus sepalorum lateralium connatorum adnato, deinde anguste auriculatum, auriculis incrassatis; laminae margines in medio utringue lateribus columnae agglutinatae. Columna arcuata, apicem versus dilatata, dorsaliter columnae adnata, basi in pedem obliquum producta, antice sub stigmatibus pubescens; stigmata 2, separata, in forma littera "V" inserta, in medio sese tingentia; rostellum triangulum, breve, apice foveato. Anthera ovato-cucullata, acuta vel obtusa; pollinia clavata viscidio parvo, ovato affixa. Ovarium cylindricum, sessile, tortum.

Plantae terrestres elatae; radicibus fasciculatis, tuberosis, crassis; foliis petiolatis, basi vaginantibus imbricatisque, supra basin rosulatis; caulibus erectis, vaginatis, supra plus minusve dense spicatis; floribus medianis, arcuatis.

Sepals more or less similar, connate at base, at times almost inflated, with divergent, spreading apices; dorsal sepal adnate to back of column for a short distance; lateral sepals oblique at the connate, enlarged base, forming a roundish mentum. Petals sinuous, the internal margins agglutinate with dorsal sepal, oblique at base. Lip with a short claw which is adnate to the fused base of lateral sepals, then narrowly auriculate, auricles fleshy with

thickenings which may be extended along external margins; the margins of the blade in the middle agglutinate with sides of column. Column arcuate, expanded upwards, dorsally fused with median sepal, basally extended into an oblique foot, in front under stigmata pubescent; stigmata 2, separate, touching each other in center and inserted in the form of the letter "V"; rostellum short, triangular with an apical fovea which is easily ruptured. Anther ovate-cucullate, acute to obtuse; pollinia clavate with a small, ovate viscidium. Ovary cylindric, sessile, twisted.

Terrestrial, more or less tall plants. Roots fasciculate, thick, tuberous. Leaves petiolate with tightly imbricating, vaginate bases forming a prominent, pillar-like base below the spreading, rosulate blades. Stem erect, vaginate terminated by a more or less densely, many-flowered spike. Flowers medium-sized, arcuate.

TYPE: *Spiranthes seminuda* Schltr.

Three species native to Mexico and Guatemala.

Index to species

Kionophyton pyramidalis (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes pyramidalis* Lindl., Gen. and Sp. Orch. Pl. 473, 1840.

Kionophyton Sawyeri (Standl. & L.O. Wms.) Garay, comb. nov.

Basionym: *Spiranthes Sawyeri* Standl. & L.O. Wms. in *Ceiba* 3: 194, 1953.

Kionophyton seminuda (Schltr.) Garay, comb. nov.

Basionym: *Spiranthes seminuda* Schltr. in *Fedde, Rep.* 3: 18, 1906.

Lankesterella Ames, *Sched. Orch.* 4: 3, 1923.

Etymology: In honor of Charles H. Lankester (1879–1969), an English naturalist and orchidophile who made his home in Costa Rica.

Syn.: *Cladobium* Schltr. in *Beih. Bot. Centralbl.* 37 (2): 431, 1920, not Lindl. 1836.

Lectotype: *Spiranthes ceracifolia* Barb.Rodr. *in hoc loco*.

Sepals dissimilar, free to base, subparallel, with spreading apices; dorsal sepal concave, partially adnate to back of column; lateral sepals oblique, with column-foot form either a gibbose mentum or spur-like. Petals agglutinate with dorsal sepal except at spreading apices, sessile or somewhat oblique at base, not truly decurrent. Lip sessile, fused with incurved base of column, broadly concave to gibbose at base, the lateral margins in middle, lightly agglutinate with sides of column, arcuate to recurved at apex. Column moderately short, somewhat arcuate, with a distinct, decurrent incurved foot; stigmata 2, commonly confluent or closely approximate with a bilobed apex; rostellum rigid, more or less unequally 3-dentate, the median tooth always longer, acuminate. Anther ovate-cucullate, acuminate; pollinia narrowly clavate with a prominent, more or less ovate-elliptic viscidium. Ovary subcylindric-fusiform, sessile or subsessile.

Plants small, caespitose, facultative epiphytes, growing among mosses on tree branches. Roots rather slender, fasciculate. Leaves basal, several, sessile, or with a cuneate base, the margins commonly ciliolate. Scape erect, slender, pubescent to villose, loosely few-flowered above. Flowers membranaceous, small to medium in size.

TYPE: *Lankesterella costaricensis* Ames

Eight species native to the American tropics.

Index to species

caespitosa (Lindl.) Hoehne

ceracifolia (Barb.Rodr.) Mansf.

costaricensis Ames = *Lankesterella orthantha* (Krzl.) Garay

epiphyta (Barb.Rodr.) Mansf. = *Lankesterella caespitosa* (Lindl.) Hoehne

gnoma (Krzl.) Hoehne

Hoehnei Leite = *Lankesterella gnoma*. (Krzl.) Hoehne.

longicollis (Cogn.) Hoehne

majus (Hoehne & Schltr.) Hoehne = *Lankesterella ceracifolia* (Barb.Rodr.) Mansf.

mantiens Hoehne = *Lankesterella ceracifolia* (Barb.Rodr.) Mansf.

oligantha (Hoehne & Schltr.) Mansf. = *Lankesterella ceracifolia* (Barb. Rodr.) Mansf.

orthantha (Krzl.) Garay

parvula (Krzl.) Pabst

pilosa (Cogn.) Hoehne

Salehi Pabst = *Lankesterella caespitosa* (Lindl.) Hoehne

Spannageliana (Hoehne & Brade) Mansf.

Limodorum L.C. Rich.

lanceolatum Aubl. = *Sacoila lanceolata* (Aubl.) Garay

praecox Walt. = *Spiranthes praecox* (Walt.) Wats.

Lyroglossa Schltr. in Beih. Bot. Centralbl. 37(2): 448, 1920.

Etymology: *Lyra* = lyre and *glossa* = tongue, describing the shape of the lip characteristic for all species.

Sepals subsimilar, from a subparallel base, divergent; dorsal sepal ovate-lanceolate, deeply concave; lateral sepals spreading with more or less reflexed apex, basally decurrent on short column-foot, without forming a true mentum. Petals variable, the internal margins firmly agglutinate with dorsal sepal, with an oblique, non-decurrent base. Lip membranaceous, panduriform, subsessile, with a very short claw, the margins of which linear, callose-thickened; the margins of the blade above base agglutinate with column on both sides. Column short, dilated above, sulcate and pubescent in front, basally produced in a short foot of same length; stigmata 2, terminal, approximate, touching each other in the middle, more or less cleft by median furrow in front of column; rostellum rigid, acuminate. Anther ovate-cucullate, acute; pollinia clavate with a small, narrowly oblong viscidium. Ovary subsessile, arcuately fusiform to cylindric, more or less lightly twisted.

Terrestrial, small plants, commonly aphyllous during anthesis. Roots fleshy, fusiform-tuberous, pubescent. Leaves when present small, basal, few. Stem slender, erect, remotely many-sheathed, terminated by a rather loosely, several-flowered, more or less spirally twisted spike. Flowers small.

Lectotype: *Spiranthes Grisebachii* Cogn. [Angely, Fl. Analit. S. Paulo 6:1277, 1973]

Three species native to Mexico, Trinidad, Venezuela, Bolivia and Brazil.

Index to species

bicolor (Griseb.) Schltr. = *Lyroglossa Grisebachii* (Cogn.) Schltr.
Bradei Schltr. ex Mansf. = *Pteroglossa Hilariana* (Cogn.) Garay
euglossa (Krzl.) Hoehne & Schltr. = *Lyroglossa Grisebachii* (Cogn.) Schltr.

Grisebachii (Cogn.) Schltr.

pubescens (Barb.Rodr.) Schltr. = *Beadlea bicolor* (Ker-Gawl.) Garay

Lyroglossa pubicaulis (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes pubicaulis* L.O. Wms. in Bot. Mus. Leaflet 12:234, 1946.

Rodriguesii Schltr. ex Hoehne, nomen = *Lyroglossa Grisebachii* (Cogn.) Schltr.

Lyroglossa spirata (Hoehne) Garay, comb. nov.

Basionym: *Spiranthes spirata* Hoehne in Arch. Mus. Nac. Rio 22: 71, 1919.

Manniella Rchb.f., Otia Bot. Hamburg. 2: 79, Aug. 10, 1881.

Reprinted from Verzeichniss der Vorlesungen, welche am Hamburgisches Akademischen Gymnasium von Ostern 1881 bis Ostern 1882 gehalten werden sollen.

Etymology: In honor of Gustav Mann (1836-1916) a German collector and explorer of Cameroon Mountains and of Assam.

All three sepals connate into a cylindrical tube with free, spreading apices; dorsal sepal concave, galeate; lateral sepals oblique, spreading with recurved apices. Petals connivent with dorsal sepal, not agglutinate with it, ovate-elliptic with a long, linear claw which are fully adnate to sepaline tube. Lip unguiculate, the claw fully adnate to front wall of sepaline tube, then sagittate at base with a subquadrate to trapezoid blade; disc very fleshy, heavily papillose-pilose with membranaceous margin, not agglutinate with sides of column. Column elongate, dorsally adnate full length to sepaline tube, apical free portion inclined, basally extended into a short, oblique foot on top of ovary; clinandrium subquadrate with a flat bottom, basket-like, the side walls free, (erroneously described as wings!) serrulate, not connected with sides of stigmatic cavity; stigmata 2, completely confluent; rostellum low, hardly discernible, transverse, emarginate with a small fovea beneath. Anther broad, umbonate, completely hidden in the basket-like clinandrium, subincumbent;

pollinia obovate-clavate with a small, round viscidium. Ovary cylindric, sessile, slightly twisted.

Terrestrial, tall plants. Roots fasciculate, rather slender, villose. Leaves basal, distichous, petiolate with imbricating vaginate base. Stem erect, remotely several bracteolate which decreases upwards in size, terminated by a long loosely many-flowered spike. Flowers small.

TYPE: *Manniella Gustavi* Rchb.f.

One species native to western tropical Africa.

Index to species

americana C. Schweinf. & Garay = *Helonoma americana* (C. Schweinf. & Garay) Garay

Gustavi Rchb.f.

hongkongensis Hu & Barretto = *Pelexia obliqua* (J.J.Sm.) Garay

Mesadenella Pabst & Garay in *Arquiv. Jard. Bot. Rio* 12: 205, 1952.

Etymology: *Mesadenus* = a genus of orchids and *-ella* = a diminutive suffix, suggestive of systematic position in Schlechter's classification of the subtribe *Spiranthinae*.

Sepals free, dissimilar, subparallel, somewhat diverging towards apex; lateral sepals obliquely decurrent on column-foot forming an obtuse mentum. Petals connivent with dorsal sepal, inner margins agglutinate with dorsal sepal, but apices free. Lip with a distinct claw, saggitate at base; blade conduplicate. Column short, puberulent in front, basally extended into a decurrent, incurved foot, together with lateral sepals forming a distinct mentum; stigmata 2, anterior, approximate, touching each other in middle; rostellum rigid, more or less cartilaginous, linear-subulate, acuminate. Anther entire, concave; pollinia clavate. Anther ovate-lanceolate, acute to subacuminate; pollinia clavate with small, roundish viscidium. Ovary sessile, barely twisted.

Terrestrial plants, very variable in size with fasciculate, fleshy,

fusiform roots. Leaves basal, rosulate, petiolate to cuneate at base. Scape erect, vaginate, terminated by a many-flowered, more or less spirally twisted spike. Flowers small, inconspicuous.

LECTOTYPE: *Spiranthes esmeralda* Linden & Rchb.f. [Correa in Darwiniana 11:68, 1955]

Seven species native to tropical and subtropical America, ranging from Guatemala to Brazil.

Index to species

angustisegmenta Garay

Mesadenella atroviridis (Barb.Rodr.) Garay, comb. nov.

Basionym: *Cyclopogon atroviridis* Barb. Rodr., Gen. et Sp. Orch. Nov. 2: 284, 1881.

cuspidata (Lindl.) Garay

esmeralda (Linden & Rchb.f.) Pabst & Garay = *Mesadenella cuspidata* (Lindl.) Garay

Mesadenella margaritifera (Linden & Rchb.f.) Garay, comb. nov.

Basionym: *Spiranthes margaritifera* Linden & Rchb.f. in Gard. Chron. 219, 1866.

peruviana Garay

Mesadenella petenensis (L.O. Wms.) Garay, comb. nov.

Basionym: *Spiranthes petenensis* L.O. Wms. in Phytologia 25: 460, 1973.

Tonduzii (Schltr.) Pabst & Garay

Mesadenus Schltr. in Beih. Bot. Centralb. 37 (2): 367, 1920.

Etymology: *Mesos* = middle and *aden* = gland, describing the manner how the pollinia are attached to the rostellum.

Sepals more or less similar, subparallel, somewhat diverging towards the arcuately spreading apices, often insignificantly connate basally; dorsal sepal slightly concave and adnate to a short distance to back of column; lateral sepals with an oblique base, adnate to column-foot. Petals agglutinate with dorsal sepal, more or less falcate with a decurrent base. Lip conduplicate to navicular, subsessile with thickened, auriculate base, arcuately recurved in front. Column arcuate, dorsally united with median sepal, basally produced in a decurrent foot; stigmata 2, confluent, sometimes obscurely 2-lobed at apex; rostellum very narrow, emarginate with a small, sometimes rather obscure, dorsal toothlette in middle. Anther bivalvate, rather

deeply cordate at apex, much surpassing the rostellum, during anthesis becomes flattened and arcuately curved backwards; pollinia clavate with an ovate to roundish viscidium. Ovary obliquely fusiform, sessile.

Terrestrial plants with fasciculate, fleshy, tuberous roots. Leaves, when present, basal, petiolate, rosulate. Scape erect, slender, remotely several-vaginate which decrease in size upwards, terminated by a more or less densely many-flowered, commonly secund spike. Flowers small to minute in size.

LECTOTYPE: *Spiranthes Galeottiana* A. Rich. [Britton & Wilson, Sci., Surv. Porto Rico 5(2): 186, 1924]

Eight species native to the American tropics and subtropics.

Index to species

Mesadenus affinis (C. Schweinf.) Garay, comb. nov.

Basionym: *Spiranthes affinis* C. Schweinf. in Bot. Mus. Leaf. 4: 101, 1937.

Mesadenus Chiangii (Johnst.) Garay, comb. nov.

Basionym: *Spiranthes Chiangii* Johnst. in Phytologia 45: 449, 1980.

Galeottianus Schltr. = *Mesadenus polyanthus* (Rchb.f.) Schltr.

Glaziovii (Cogn.) Schltr.

lucayanus (Britt.) Schltr.

minutiflorus (Rich. & Gal.) Schltr. = *Microthelys minutiflora* (Rich. & Gal.) Garay

polyanthus (Rchb.f.) Schltr.

Mesadenus rhombiglossus (Pabst) Garay, comb. nov.

Basionym: *Hapalorchis rhombiglossus* Pabst in Bradea 1: 468, 1975.

Mesadenus Stahlia (Cogn.) Garay, comb. nov.

Basionym: *Spiranthes Stahlia* Cogn. in Urb. Symb. Antill. 6: 341, 1910.

Mesadenus tenuissimus (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes tenuissima* L.O.Wms. in Bot. Mus. Leaf. 12:235, 1946.

Microthelys Garay, gen. nov.

Etymology: *Micros* = small and *thelys* = female, describing the nature of the rostellum.

Sepala subsimilia, parallela, apicibus leviter divergentibus; sepalo postico concavo, columnae dorsaliter adnato; sepalis lateralibus obliquis, mentum non formantibus. Petala sepalo postico agglutinata, basi oblique decurrentia. Labellum late bre-

viterque unguiculatum, conduplicato-canaliculatum, margine supra basin utrinque lateris columnae agglutinato; disco carnososo, vulgo discolori. Columna arcuata, sursum leviter dilatata, basi in pedem decurrentem, apice paululo incurva producta; stigmata 2, omnino confluentia, subquadrata; rostellum humile, haud productum, transversum, obtusum, apice vulgo persistenter foveato. Anthera ovato-elliptica acuta vel obtusa; pollinia anguste clavata, viscidio parvulo, rotundo. Ovarium cylindricum, vel fusiforme, sessile, leviter tortum.

Herbae terrestres, spithameae, graciles; radicibus tuberosis, villosis; foliis basilaribus vel subbasilaribus, suboppositis, petiolatis; caulibus erectis, vulgo vaginis imbricatis obtectis, supra laxe multifloris; floribus minutis.

Sepals subsimilar, parallel, with somewhat diverging apices; dorsal sepal concave, adnate to back of column; lateral sepals oblique at base without forming a mentum. Petals agglutinate with dorsal sepal, obliquely decurrent at base. Lip with a broad short claw, conduplicate-canaliculate, the margins above the base agglutinate with sides of column; disc fleshy, commonly discolored. Column arcuate, somewhat expanded upwards, basally produced in a decurrent, incurved foot; stigmata 2, completely confluent, subquadrate; rostellum low, hardly noticeable, transverse, commonly with a persistent fovea. Anther ovate-elliptic, obtuse or acute; pollinia narrowly clavate, with a small, round viscidium. Ovary cylindric to fusiform, sessile, somewhat twisted.

Terrestrial, small, slender herbs. Roots tuberous, villose. Leaves basal or subbasal, subopposite, petiolate. Stem erect, commonly enclosed by imbricating sheaths, loosely many-flowered above. Flowers small.

TYPE: *Spiranthes minutiflora* Rich. & Gal.

Three species native to Mexico, Guatemala and Costa Rica.

Index to species

Microthelys minutiflora (Rich. & Gal.) Garay, comb. nov.

Basionym: *Spiranthes minutiflora* Rich. & Gal. in Ann. Sci. Nat. ser. 3,3:32, 1845.

Microthelys nutantiflora (Schltr.) Garay, comb. nov.

Basionym: *Spiranthes nutantiflora* Schltr. in Fedde, Rep. 2: 131, 1906.

Microthelys rubrocallosa (Robins. & Greenm.) Garay, comb. nov.

Basionym: *Spiranthes rubrocallosa* Robins. & Greenm. in Amer. Journ. Sci. 50: 165, 1895.

Monustes Raf.

australis (R.Br.) Raf. = *Spiranthes sinensis* (Pers.) Ames

Narica Raf.

moschata Raf. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.

Neottia Erhart

acaulis J.E.Sm. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.

Adnaria Raf. = *Pelexia adnata* (Sw.) Spreng.

adnata Sw. = *Pelexia adnata* (Sw.) Spreng.

aestivalis (Poir.) Pers. = *Spiranthes aestivalis* (Poir.) L.C. Rich.

amoena Bieb. = *Spiranthes amoena* (Bieb.) Spreng.

aphylla Hook. = *Sacoila lanceolata* (Aubl.) Garay

aurantiaca Llave & Lex. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.

australis R. Br. = *Spiranthes sinensis* (Pers.) Ames

autumnalis (Balb.) Pers. = *Spiranthes spiralis* (L.) Chevall.

bicolor Ker-Gawl. = *Beadlea bicolor* (Ker-Gawl.) Garay

bracteosa (Lindl.) Steud. = *Brachystele bracteosa* (Lindl.) Schltr.

calcarata Sw. = *Eltroplectris calcarata* (Sw.) Garay & Sweet

cernua (L.) Willd. = *Spiranthes cernua* (L.) L.C. Rich.

cinnabarina Llave & Lex. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay

crispata Bl. = *Spiranthes sinensis* (Pers.) Ames

diuretica Willd. = *Brachystele unilateralis* (Poir.) Schltr.

elata (Sw.) Sw. = *Beadlea elata* (Sw.) Small

flexuosa J.E.Sm. = *Spiranthes sinensis* (Pers.) Ames

gemmipara J.E.Sm. = *Spiranthes Romanzoffiana* Cham.

gracilis Bigel. = *Spiranthes lacera* (Raf.) Raf.

grandiflora (Lindl.) Hook. = *Sarcoglottis grandiflora* (Lindl.) Kl.

lanceolata (Aubl.) Willd. = *Sacoila lanceolata* (Aubl.) Garay

lucida H.H.Eaton = *Spiranthes lucida* (H.H.Eaton) Ames

michuacana Llave & Lex. = *Stenorrhynchos michuacantum* (Llave & Lex.) Lindl.

micrantha Llave & Lex. = *incerta sedis*.

minor Jacq. = *Beadlea elata* (Sw.) Small

odorata Nutt. = *Spiranthes odorata* (Nutt.) Lindl.

orchioides (Sw.) Willd. = *Sacoila lanceolata* (Aubl.) Garay

papulosa Llave & Lex. = *Stenorrhynchos papulosum* (Llave & Lex.) Lindl.

parviflora J.E.Sm. = *Spiranthes sinensis* (Pers.) Ames

picta R.Br. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.

plantaginea Raf. = *Spiranthes lucida* (H.H.Eaton) Ames

plantaginea Hook. = *Sacoila lanceolata* (Aubl.) Garay
pudica (Lindl.) Sweet = *Spiranthes sinensis* (Pers.) Ames
quadridentata Willd. = *Spiranthes torta* (Thunb.) Garay & Sweet
sinensis Pers. = *Spiranthes sinensis* (Pers.) Ames
speciosa Jacq. = *Stenorrhynchos speciosum* (Jacq.) L.C. Rich ex
 Spreng.
spiralis (L.) Pers. = *Spiranthes spiralis* (L.) Chevall.
spiralis Sw. = *Spiranthes torta* (Thunb.) Garay & Sweet
squamulosa H.B.K. = *Sacoila squamulosa* (H.B.K.) Garay
sulphurea Llave & Lex. = *Stenorrhynchos michuacanum* (Llave &
 Lex.) Lindl.
tortilis Muhl. = *Spiranthes vernalis* Engelm. & Gray
tortilis Sw. = *Spiranthes torta* (Thunb.) Garay & Sweet
vaginata H.B.K. = *Stenorrhynchos vaginatum* (J.B.K.) Spreng.

Nothostele Garay, gen. nov.

Etymology: *Nothos* = false and *stele* = column, pillar, describing the nature of gynandrium which lacks fusion between the filament and style.

Sepala inequalia, patentissima, basi minutiuscule inter se connata; sepalo postico concavo, basi filamentum antherae liberum adnato; sepalis lateralibus divaricatis, plus minusve arcuatis, lateraliter pedem columnae adnatis et cum eo sacculum brevem, ovarium adpressum formantibus. Petala obliqua, arcuata, sepalo postico agglutinata, basi obliqua. Labellum superum, sessile, in ambitu rhombeum, basi cuneatum, margine incrassatum. Columna horizontalis, gracilis, facie puberula, apicem versus paululo dilatata, basi in pedem longum, apici ovarii oblique extensa; stigmata 2, terminalia, omnino confluentia vel sese arcte adpressa; rostellum longe triangulare acuminatum; clinandrium hyalino-marginatum, haud evolutum. Anthera ovato-ligulata, apice recurva, basi et filamentum eius libera; pollinia clavata, distincte caudiculata, viscidio rotundo, parvo affixa. Ovarium, breviter pedicellatum, cylindricum, non tortum.

Plantae terrestres, sub anthesin aphyllae, radicibus non observatis; caulibus erectis, gracilibus, hyalino-vaginatiss, supra laxè paucifloris; racemis quaquaversis; floribus non resupinatis, parvulis, patentibus.

Sepals unequal in size, spreading, rather insignificantly connate at base; dorsal sepal concave, basally adnate to back of free

filament of anther; lateral sepals divaricate, more or less arcuate, adnate to sides of column-foot and with it form a short sac which is adpressed to the ovary. Petals oblique, arcuate, agglutinate with dorsal sepal, oblique at base. Lip uppermost, sessile, rhombic in outline, cuneate at base with thickened margins. Column horizontal, slender, puberulent in front, somewhat dilated upwards, basally extended into a long foot, obliquely inserted on top of ovary; stigmata 2, terminal, completely confluent or tightly adpressed to one another; rostellum long, triangular, acuminate, laminar with revolute margins; clinandrium formed by a narrow, hyaline margin, free from filament of anther. Anther ovate-ligulate, with a recurved apex, and with a free filament; pollinia clavate with distinct caudicles and a small, round viscidium. Ovary pedicellate, cylindric, not twisted.

Terrestrial plants, completely leafless during flowering time. Roots so far unknown. Stem erect, slender with several hyaline sheaths, terminated by a loosely few-flowered, allsided raceme. Flowers not resupinate, small, with spreading segments.

TYPE: *Pelexia acianthiformis* Rchb.f. & Warm.

One species native to Brazil.

Index to species

Nothostele acianthiformis (Rchb.f. & Warm.) Garay, comb. nov.

Basionym: *Pelexia acianthiformis* Rchb.f. & Warm., Otia Bot. Hamb. 2:53, 1881.

Odontorrhynchus Correa in Darwiniana 10: 157, 1953.

Etymology: *Odontos* = tooth and *rhynchos* = snout, in reference to the dentate rostellum (which is not snout-like) in the type specimen.

Sepals rather dissimilar, free, subparallel with more or less spreading apices; dorsal sepal concave to cucullate, free from column; lateral sepals adnate laterally to column-foot and with it form an obliquely descending, somewhat enlarged, rounded base, not representing a true mentum. Petals linear, agglutinate along inner margins with dorsal sepal. Lip sessile to subun-

guiculate with free, falcate, callose processes at base, not truly sagittate; blade conduplicate-arcuate with the lateral margins agglutinate to sides of column. Column rather short, stout, with an obliquely descending foot; stigmata 2, tightly approximate to confluent, bilobed (not free and separated as stated); rostellum cartilaginous, broadly triangular, acute at the more or less obscurely 3-lobulate to 3-dentate apex, with a large, V-shaped groove in front to accomodate the conspicuous viscidium. Anther ovate-cucullate, acute, cordate at base; pollinia clavate with a conspicuous, more or less elliptic viscidium. Ovary cylindrical to obliquely fusiform, subsessile, more or less twisted.

Terrestrial herbs, commonly leafless during anthesis. Roots fasciculate, fusiform, tuberous. Stem erect, completely enclosed by imbricating, sometimes almost foliaceous sheaths, terminated by a densely many-flowered, more or less cylindrical spike. Flowers small.

TYPE: *Stenorrhynchus Castillonii* Haum.

Five species native to Bolivia, Peru, Argentina and Chile.

Index to species

alticola Garay

Castillonii (Haum.) Correa

Odontorrhynchus chilensis (A. Rich.) Garay, comb. nov.

Basionym: *Spiranthes chilensis* A. Rich. in Gay, Hist. Nat. Chile, Bot. 5: 475, 1852.

Odontorrhynchus chlorops (Rchb.f.) Garay, comb. nov.

Basionym: *Spiranthes chlorops* Rchb.f., Xenia Orch. 3:20, 1878.

Ghillanyi Pabst = *Thelyschista Ghillanyi* (Pabst) Garay

variabilis Garay

Ophrys L.

aestiva Balb. = *Spiranthes aestivalis* (Poir.) L.C. Rich

aestivalis Poir. = *Spiranthes aestivalis* (Poir.) L.C. Rich.

aestivalis Michx. = *Spiranthes vernalis* Engelm. & Gray

autumnalis Balb. = *Spiranthes spiralis* (L.) Chevall.

cernua L. = *Spiranthes cernua* (L.) L.C. Rich.

peregrina Sessé & Moc. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay

peruviana Aubl. = *Spiranthes torta* (Thunb.) Garay & Sweet

pubescens Sessé & Moc. = *Stenorrhynchus aurantiacum* (Llave & Lex.) Lindl.

quinelobata Poir. = *Spiranthes torta* (Thunb.) Garay & Sweet
spiralis L. = *Spiranthes spiralis* (L.) Chevall.
torta Thunb. = *Spiranthes torta* (Thunb.) Garay & Sweet
unilateralis Poir. = *Brachystele unilateralis* (Poir.) Schltr.

Orchistraum Seguiet

porrifolium (Lindl.) Greene = *Spiranthes porrifolia* Lindl.
Romanzoffianum (Cham.) Greene = *Spiranthes Romanzoffiana* Cham.

Orchis L.

ventricosa (Vell.) Steud. = *Sarcoglottis ventricosa* (Vell.) Hoehne

Pelexia Poit. ex Lindl. in Bot. Reg. 12: sub t. 985, 1826, *nom. cons.*

Etymology: *Pelex* = helmet, in reference to the appearance of the dorsal sepal which together with the petals form a helmet-like structure.

Syn.: *Collea* Lindl. in Bot. Reg. 9: sub t. 760, 1823, *nom. reject.*

Type: *Satyrium adnatum* Sw.

Adnulla Raf., Fl. Tellur. 2: 87, 1837.

Type: *Satyrium adnatum* Sw.

Sepals unequal, ringent; dorsal sepal concave to cucullate, together with petals form a distinct helmet-like structure; lateral sepals more or less porrect, decurrent on the protruding column-foot, basally connate into a ventricose, saccate or spur-like vesicle which is often manifested in a pronounced mentum. Petals connivent with dorsal sepal, decurrent or variously oblique at base. Lip fleshy, prominently unguiculate, fleshy-sagittate at base, rarely auriculate, lateral margins agglutinate with sides of column. Column rather stout, elongate, puberulent or pilose in front, basally produced in a decurrent foot which often protrudes from the wall of the ovary; stigmata 2, separate to variously approximate; rostellum rather soft, pliable, laminar, linear-oblong to ligulate, obtuse or truncate. Anther ovate-cordate, obtuse; pollinia clavate with a thick, ovate to suborbicular viscidium. Ovary cylindric to more or less fusiform, sessile or subsessile, somewhat twisted.

Terrestrial herbs, rarely subaquatic or hydrophilous. Roots fasciculate, fleshy, stipitate to fusiform. Leaves when present

basal, petiolate, rarely withered during anthesis. Scape erect, vaginate to bracteate, terminated by a loosely to densely, many-flowered spike. Flowers commonly medium to large in size.

TYPE: *Satyrium adnatum* Sw.

67 species native to the tropics and subtropics of the New World.

Index to species

acianthiformis Rchb.f. & Warm. = *Nothostele acianthiformis* (Rchb.f. & Warm.) Garay

adnata (Sw.) Spreng.

albicans (Cogn.) Schltr.

aphylla Ridl. 1886 = *Sarcoglottis aphylla* (Ridl.) Schltr.

aphylla (Vell.) Schltr. 1920 = *Pelexia Arrabidae* (Rchb.f.) Garay

Pelexia Arrabidae (Rchb.f.) Garay, comb. nov.

Basionym: *Stenorrhynchus Arrabidae* Rchb.f. in *Linnaea* 22: 815, 1850.
Berroana (Krzl.) Schltr. = *Skeptrostachys Berroana* (Krzl.) Garay

bonariensis (Lindl.) Schltr.

Bradei Schltr. ex Mansf.

Burgeri Schltr.

bursaria Lindl. = *Erythrodes plantaginea* (L.) Fawc. & Rendl.

calcarata (Sw.) Cogn. = *Eltroplectris calcarata* (Sw.) Garay & Sweet

callifera (C. Schweinf.) Garay

callosa Ames 1924 = *Pelexia Funckiana* (Rich. & Gal.) Schltr.

callosa Correa 1953 = *Pelexia bonariensis* (Lindl.) Schltr.

calophylla (Porsch) Schltr. = *Pelexia novofriburgensis* (Rchb.f.) Garay

Caucae Schltr.

Pelexia cerina (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes cerina* Lindl. in *Bot. Reg.* 28: Misc. p. 20, 1842.

comosa (Cogn.) Schltr.

congesta A. & S. = *Pelexia Funckiana* (Rich. & Gal.) Schltr.

corymbosa (Lindl.) Lindl. = *Sauroglossum corymbosum* (Lindl.) Garay

cranichoides Griseb. = *Beadlea cranichoides* (Griseb.) Small

cuculligera (Rchb.f. & Warm.) Schltr.

Pelexia decora (Garay) Garay, comb. nov.

Basionym: *Spiranthes decora* Garay in *Can. Journ. Bot.* 34: 248, 1956.

dolichorhiza Schltr.

domingensis Lindl. = *Eltroplectris calcarata* (Sw.) Garay & Sweet

ecuadorensis Schltr.

Ekmanii (Krzl.) Schltr.

falcata (Thunb.) Spreng. = *Cephalanthera falcata* (Thunb.) Bl.

Fiebrigii Schltr. = *Pelexia Mandonii* (Rchb.f.) Schltr.

foliosa Poepp. & Endl. = *Aspidogyne foliosa* (Poepp. & Endl.) Garay

Funckiana (Rich. & Gal.) Schltr.

Glazioviana Cogn. = *Pteroglossa Glazioviana* (Cogn.) Garay
goninensis (Pulle) Schltr.
Pelexia goyazensis (Cogn.) Garay, comb. nov.
 Basionym: *Spiranthes goyazensis* Cogn. in Mart., Fl. Bras. 3(6): 542, 1906.
gracilis Schltr.
 guatemalensis Schltr. = *Pelexia Funckiana* (Rich. & Gal.) Schltr.
Pelexia gutturosa (Rchb.f.) Garay, comb. nov.
 Basionym: *Spiranthes gutturosa* Rchb.f., Beitr. Orch. Centr. Amer. 67, 1866.
hamata Schltr.
 Hameri Garay = *Pelexia obliqua* (J.J.Sm.) Garay
 Hilariana (Cogn.) Schltr. = *Pteroglossa Hilariana* (Cogn.) Garay
hirta (Lindl.) Schltr.
 Hoffmannii Rchb.f. = *Pseudocentrum Hoffmannii* (Rchb.f.) Rchb.f.
 hondurensis Ames = *Pelexia Funckiana* (Rich. & Gal.) Schltr.
 hypnophila (Barb.Rodr.) Schltr. = *Pelexia novofriburgensis* (Rchb.f.) Garay
hysterantha (Barb.Rodr.) Schltr.
incurvidens Schltr.
itatiaiae Schltr.
 japonica Spreng. = *Cephalanthera erecta* (Thunb.) Bl.
laminata Schltr.
laxa (Poepp. & Endl.) Lindl.
 Lehmanniana Krzl. = *Pelexia olivacea* Rolfe
 leucosticta (Rchb.f.) Garay & Dunsterv. = *Pelexia novofriburgensis* (Rchb.f.) Garay
Lindmaniana (Krzl.) Schltr.
Lindmanii Krzl.
Pelexia lobata (Lindl.) Garay, comb. nov.
 Basionym: *Spiranthes lobata* Lindl. in Bot. Reg. 30: Misc. p. 11, 1844.
Loefgrenii (Porsch) Schltr.
longibracteata Pabst
 longicornu Cogn. = *Eltroplectris longicornu* (Cogn.) Pabst
longifolia (Cogn.) Hoehne
 longipetiolata (Rchb.f.) Schltr. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
Leutzenburgii Schltr.
macropoda (Barb.Rodr.) Schltr.
 maculata Rolfe = *Pelexia laxa* (Poepp. & Endl.) Lindl.
 magdalensis Brade & Pabst = *Pelexia sancta* (Rchb.f. & Warm.) Garay
Madonii (Rchb.f.) Schltr.
 mattogrossensis (Hoehne) Hoehne = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.
matucanensis (Krzl.) Schltr.
Maxonii Ames
minarum (Krzl.) Schltr.
Mouraei Schltr.
neottiorhiza (Krzl.) Pabst
Pelexia novofriburgensis (Rchb.f.) Garay, comb. nov.
 Basionym: *Stenorrhynchus novofriburgensis* Rchb.f. in Linnaea 22: 815, 1850.

Pelexia obliqua (J.J.Sm.) Garay, comb. nov.

Basionym: *Spiranthes obliqua* J.J.Sm. in Bull. Dept. Agric. Ind. Neerl. 43: 74, 1910.

oestrifera (Rchb.f. & Warm.) Schltr.

olivacea Rolfe

orobanchoides (Krzl.) Schltr.

orthosepala (Rchb.f. & Warm.) Schltr.

ovatifolia Correa

paludosa Correa

Pelexia paraguayensis Garay, nom. nov.

Basionym: *Stenorrhynchus vaginatus* Cogn. in Bull. Soc. Roy. Belg. 43:290, 1906, not Spreng. 1826.

parva (Cogn.) Schltr.

pauciflora Poepp. & Endl. = *Eltroplectris pauciflora* (Poepp. & Endl.) Garay

Pelexia Pavonii (Rchb.f.) Garay, comb. nov.

Basionym: *Spiranthes Pavonii* Rchb.f. in Bonpl. 4: 211, 1856.

polyantha Schltr. ex Mansf. = *Pelexia novofriburgensis* (Rchb.f.) Garay

Pringlei Fern. = *Pelexia Funckiana* (Rich. & Gal.) Schltr.

pterygantha (Rchb.f. & Warm.) Schltr.

repens Poepp. & Endl. = *Aspidogyne repens* (Poepp. & Endl.) Garay

Pelexia Richardiana (Schltr.) Garay, comb. nov.

Basionym: *Spiranthes Richardiana* Schltr. in Beih. Bot. Centralb. 36(2): 435, 1918.

robusta (Krzl.) Schltr.

roseoalba Rchb.f. = *Eltroplectris roseoalba* (Rchb.f.) Hamer & Garay

saccata Rolfe = *Pelexia Schaffneri* (Rchb.f.) Schltr.

saltensis (Griseb.) Schltr.

Pelexia sancta (Rchb.f. & Warm.) Garay, comb. nov.

Basionym: *Spiranthes sancta* Rchb.f. & Warm. Otia Bot. Hamb. 2:85 1881.

sceptrum Schltr.

Schaffneri (Rchb.f.) Schltr.

setacea Lindl. = *Eltroplectris calcarata* (Sw.) Garay & Sweet

Pelexia Smithii (Rchb.f.) Garay, comb. nov.

Basionym: *Spiranthes Smithii* Rchb.f. in Gard. Chron. 842, 1868.

Sodiroides Schltr. = *Pelexia hirta* (Lindl.) Schltr.

spiranthoides Lindl. = *Pelexia adnata* (Sw.) Spreng.

stenantha (Cogn.) Schltr.

stenorrhynchoides Griseb. = *Pelexia adnata* (Sw.) Spreng.

stictophylla Schltr. = *Pelexia Lindmanii* Krzl.

subaequalis Ames = *Pelexia Funckiana* (Rich. & Gal.) Schltr.

tamanduënsis (Krzl.) Schltr.

tenuior Schltr.

tomentosa (Vell.) Schltr. = *Sacoila lanceolata* (Aubl.) Garay

tovarensis (Garay & Dunsterv.) Garay & Dunsterv.

trachyglossa (Krzl.) Pabst = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.

Travassosii Rolfe = *Eltroplectris Travassosii* (Rolfe) Garay

triloba Lindl. = *Eltroplectris triloba* (Lindl.) Pabst

vaginata (Cogn.) Schltr. = *Pelexia paraguayensis* Garay

ventricosa (Cogn.) Schltr.

viridis (Cogn.) Schltr.

Weberbaueri (Krzl.) Schltr.

Weberbauerana (Krzl.) Schltr. Sphalm. = *Pelexia Weberbaueri* (Krzl.) Schltr.

Weirii (Rechb.f.) Schltr. = *Pelexia laxa* (Poepp. & Endl.) Lindl.

Wendlandiana Krzl. = *Pelexia olivacea* Rolfe

yungasensis (Rolfe) Schltr.

Physogyne Garay, gen. nov.

Etymology: *Physao* = distend, inflate and *gyne* = female, in reference to the column which is ballooned out in front.

Sepala similia, conniventia, subparallela; sepalo postico concavo, usque ad basin libero; sepalis lateralibus inter se breviter connatis, gibbum minutum, rotundatum formantibus. Petala obliqua vel subfalcata, margine interiori sepalo postico agglutinata. Labellum breviter unguiculatum, ungue basi sepalorum lateralium adnato, deinde cordatum, apicem versus attenuatum, disco juxta unguem utrinque cornu carnosum, falcato ornato. Columna erecta, arcuatim convexa, basi obliqua, facie pubescens; stigmata 2, confluentia, apice biloba; rostellum elongatum, lineare. Anthera ovato-lanceolata, acuminata, valde concava, basi cordata; pollinia clavata, viscidio parvo, elliptico affixa. Ovarium cylindricum vel fusiforme, sessile, vix tortum.

Plantae terrestres, pedales; radicibus fasciculatis, tuberosis, pubescentibus; foliis plurimis, basalibus, cuneatis, sub anthesin persistentibus vel emarcidis; caulibus erectis, vaginatis, sursum laxe spicatis, multifloris; floribus minutis.

Sepals similar, connivent, subparallel; dorsal sepal concave, free to base; lateral sepals basally connate for a short distance, forming a small, round, gibbose base. Petals oblique or subfalcate, the inner margin agglutinate with dorsal sepal. Lip with a short claw which is fused with the connate gibbose part of lateral sepals, cordate at base, attenuate toward apex; disc with a pair of fleshy, falcate horns on both sides of the claw. Column erect, arcuately convex in front, ballooned out, due to inflated clinandrium, pubescent below stigmata, oblique at base; stigmata 2, confluent, with a bilobed apex; rostellum elongate, linear. Anther ovate-lanceolate, acuminate, deeply concave, with a cor-

date base; pollinia clavate with a small, elliptic viscidium. Ovary cylindric or fusiform, sessile, hardly if ever twisted.

Terrestrial plants. Roots fasciculate, tuberous, pubescent. Leaves several, basal, cuneate, commonly present during flowering time, but may also be in the process of withering. Stem erect, completely covered with approximate sheaths, terminated by a long, loosely many-flowered spike. Flowers small to minute.

TYPE: *Spiranthes Gonzalesii* L.O.Wms.

Two species native to Mexico.

Index to species.

Physogyne Gonzalesii (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes Gonzalesii* L.O.Wms. in Bot. Mus. Leafl. 12:229, 1946.

Physogyne sparsiflora (C. Schweinf.) Garay comb. nov.

Basionym: *Spiranthes sparsiflora* C. Schweinf. in Bot. Mus. Leafl. 4:108, 1937.

Physurus L.C.Rich. ex Lindl.

pauciflorus (Poepp. & Endl.) Lindl. = *Eltroplectris pauciflora* (Poepp. & Endl.) Garay

Pseudocranichis Garay, gen. nov.

Etymology: *Pseudo* = false and *Cranichis* = generic name, signifying the mistaken assignment of the type species to the genus *Cranichis*.

Sepala similia, ringentia; sepalo postico infero, concavo, columnae basin dorsaliter adnato; sepalis lateralibus praecipue basin breviter connatis, superis, leviter divaricatis, cum ungue labelli gibbum parvulum, rotundum vel subbilobum formantibus. Petala libera, apice erosula. Labellum superum unguiculatum, conduplicatum, margine in medio lateribus columnae agglutinatum, basi sagittatum, apice grosse lacerato-bilobum; disco in medio 3-callosa, distincte pubescenti. Columna crassa, humilis, basi oblique extensa, sursum sensim dilatata, apice truncata, antice in medio costata, facie omnino puberula; stigmata 2, lateralia, ephippioidea, quam rostellum longiora; rostellum truncatum, foveatum. Anthera erecta, ovato-oblonga, ob-

tusa, basi subcordata; pollinia clavata, viscidio parvulo, truncato affixa. Ovarium cylindricum, sessile, non tortum.

Plantae terrestres; radicibus fasciculatis crassis, fusiformibus; foliis 2-3, basilaribus cuneatis, sessilibus; scapo suberecto vel arcuato, gracili, remote pauci vaginato, supra spicato, laxe multifloro; floribus parvis, non resupinatis.

Sepals similar, ringent; dorsal sepal lowermost, concave, at base adnate to back of column; lateral sepals shortly connate at base, uppermost, somewhat divaricate, fused with the claw of lip and together form a small, round, or bilobed gibbosity. Petals free with erose apex. Lip uppermost, unguiculate, the margins in the middle agglutinate with sides of column, saggitate at base, coarsely lacerate, bilobed at apex; disc with 3 callose-thickened veins in middle, distinctly pubescent. Column fleshy, short with an obliquely extended base, gradually expanded upwards, truncate at apex, with a median costa in front which extends into the claw of the lip; whole of front puberulent; stigmata 2, lateral, saddle-shaped, longer than the rostellum; rostellum truncate, foveate. Anther erect, ovate-oblong, obtuse, subcordate at base; pollinia clavate with a small, truncate viscidium. Ovary cylindric, sessile, not twisted.

Terrestrial plants. Roots fleshy, fusiform, fasciculate. Leaves 2 to 3, basal, cuneate, sessile. Scape suberect to arcuate, rather slender, remotely few-sheathed, terminated by a laxly many-flowered spike. Flowers small, not resupinate.

TYPE: *Cranichis thysanochila* Robins. & Greenm.

One species native to Mexico, State of Oaxaca.

Index to species

Pseudocranichis thysanochila (Robins. & Greenm.) Garay, comb. nov.

Basionym: *Cranichis thysanochila* Robins. & Greenm. in Proc. Amer. Acad. Sci. 32: 35, 1896.

Pseudoeurystyles Hoehne

Cogniauxii (Krzl.) Hoehne = *Eurystyles Cogniauxii* (Krzl.) Schltr.

Gardneri (Lindl.) Hoehne = *Eurystyles Gardneri* (Lindl. ex Gardn.)

Garay

Lorenzii (Cogn.) Hoehne = *Eurystyles Lorenzii* (Cogn.) Schltr.

Schwackeana Hoehne = *Eurystyles Lorenzii* (Cogn.) Schltr.

Pseudogoodyera Schltr. in Beih. Bot. Centralbl. 37(2): 369, 1920.

Etymology: *Pseudo* = false and *Goodyera* = generic name, signifying the mistaken assignment of the type species to the genus *Goodyera*.

Sepals similar, free to base; dorsal sepal concave; lateral sepals oblique at base. Petals for the most part with inner margins agglutinate to dorsal sepal, the apex free, basally not decurrent. Lip from a broadly cuneate-unguiculate base cordate-cochleate, rather fleshy with thin margins and with a transverse ridge above the base on the disc. Column very short, arcuate, minutely puberulent in front, basally produced in a short, somewhat incurved foot on top of ovary; stigmata 2, confluent, transversely reniform; rostellum rather short, trapezoid, emarginate. Anther broadly ovate-elliptic, obtuse to rounded at apex; pollinia clavate with a small, oval to subrotund viscidium. Ovary sessile, fusiform, slightly twisted.

Terrestrial, delicate plants with caespitose, fleshy, more or less fusiform roots. Leaves basal, petiolate, rosulate. Stem erect, rather slender, heavy bracteolate throughout, terminated by a rather densely, many-flowered, quaquaversal spike. Flowers minute, subglobose.

TYPE: *Goodyera Wrightii* Rchb.f.

One species native to Mexico, Guatemala and the West Indies.

Index to species

Wrightii (Rchb.f.) Schltr.

Pterichis Lindl.

Widgrenii (Rchb.f.) Cogn. = *Brachystele Widgrenii* (Rchb.f.) Schltr.

Pteroglossa Schltr. in Beih. Bot. Centralbl. 37(2): 450, 1920.

Etymology: *Pteron* = wing and *glossa* = tongue, in reference to the prominent lateral lobes of the lip in the plants originally assigned to the genus.

Syn.: *Cogniauxiocharis* (Schltr.) Hoehne in Arq. Bot. Estad. S. Paulo, ser. 2, 1: 132, 1944.

Type: *Pelexia Glazioviana* Cogn.

Sepals very unequal, spreading; dorsal sepal concave, together with the petals form a semiopen hood; lateral sepals decurrent on column-foot, for the most part adnate to ovary, except at basal free tip, never spur-like. Petals obliquely cuneate, agglutinate with dorsal sepal, with a decurrent base. Lip sessile or subsessile with thickened basal margins, then long-ligulate to cuneate towards apex. Column short, erect, sulcate in front, basally produced in a long foot which is adnate to ovary wall for the most part, except at the free tip; stigmata terminal, 2 or deeply bilobed, more or less separated from one another by the terminal edge of a distinct fold running full length on face of column; rostellum rigid, sharp-pointed, more or less triangular. Anther ovate, obtuse, deeply concave; pollinia clavate with oblong to subrotund viscidium. Ovary sessile, cylindric to fusiform, hardly twisted.

Terrestrial, tall plants. Roots fasciculate, fleshy, stipitate-fusiform. Leaves basal in a rosette, either synanthus or hysternanthus, with a cuneate base. Scape erect, vaginate or bracteolate, terminated by a many-flowered spike. Flowers conspicuous.

LECTOTYPE: *Spiranthes macrantha* Rchb.f. [Angely, Fl. Analit. S. Paulo 6: 1277, 1973]

Eight species native to South America.

Index to species

Pteroglossa euphlebia (Rchb.f.) Garay, comb. nov.

Basionym: *Spiranthes euphlebia* Rchb.f. in Gartenfl. 32: 3, 1883.

Pteroglossa Glazioviana (Cogn.) Garay, comb. nov.

Basionym: *Pelexia Glazioviana* Cogn. in Mart., Fl. Bras. 3(4): 157, 1895.

Pteroglossa Hilariana (Cogn.) Garay, comb. nov.

Basionym: *Stenorrhynchus Hilarianus* Cogn. in Mart. Fl. Bras. 3(6): 541, 1906.

Pteroglossa lurida (Correa) Garay, comb. nov.

Basionym: *Centrogenium luridum* Correa in Bol. Soc. Arg. Bot. 14: 319, 1972.

luteola Garay

macrantha (Rchb.f.) Schltr.

regia (Krzl.) Schltr.

rhombipetala Garay

Sacoila Raf., Fl. Tellur. 2: 86, 1837.

Etymology: *Saccos* = bag and *koilos* = hollow, describing the spur-like extension formed by the bases of the lateral sepals.

Sepals free, subsimilar connivent; dorsal sepal concave; lateral sepals decurrent on column-foot, and together form a more or less free-projecting, spur-like extension. Petals agglutinate with dorsal sepal, basally decurrent on column-foot. Lip sessile, from a cuneate base conduplicate, somewhat arcuate, margins in middle agglutinate with sides of column, at base with linear thickenings. Column short, stout, basally extended in a long foot which is decurrent on sides of ovary with the end protruding into a free tip; stigmata terminal, 2, confluent; rostellum rigid, linear-acicular, sharp-pointed. Anther ovate, acute or acuminate, concave, much shorter than the rostellum; pollinia narrowly clavate with a linear viscidium. Ovary clavate to fusiform, with a short pedicel, somewhat twisted.

Terrestrial plants. Roots fasciculate, tuberous. Leaves commonly hysteranthus, when synanthus either basal or cauline, cuneate, sessile. Stem erect, vaginate or bracteolate, terminated by subdense, many-flowered raceme. Flowers large, often showy.

TYPE: *Neottia aphylla* Hook.

Ten species native to the tropics and subtropics of the New World.

Index to species

Sacoila apetala (Krzl.) Garay, comb. nov.

Basionym: *Stenorrhynchus apetalus* Krzl. in Fedde, Rep. 6: 23, 1908.

Sacoila argentina (Griseb.) Garay, comb. nov.

Basionym: *Stenorrhynchus argentinus* Griseb., Symb. Fl. Argent. 339, 1879.

Sacoila Duseniana (Krzl.) Garay, comb. nov.

Basionym: *Stenorrhynchus Dusenianus* Krzl. in Svensk Vet. Akad. Handl. 46(10): 28: 1911.

Sacoila foliosa (Schltr.) Garay, comb. nov.

Basionym: *Stenorrhynchus foliosus* Schltr. in Fedde, Rep. 17: 12, 1920.

Sacoila Hassleri (Cogn.) Garay, comb. nov.

Basionym: *Stenorrhynchus Hassleri* Cogn. in Mart., Fl. Bras. 3(6): 534, 1906.

Sacoila lanceolata (Aubl.) Garay, comb. nov.

Basionym: *Limodorum lanceolatum* Aubl., Hist. Pl. Guiane Fr. 2: 821, 1775.

lurida Raf. = *Sacoila lanceolata* (Aubl.) Garay

Sacoila pedicellata (Cogn.) Garay, comb. nov.

Basionym: *Stenorrhynchus pedicellatus* Cogn. in Mart., Fl. Bras. 3 (6): 539, 1906.

Sacoila riograndensis (Krzl.) Garay, comb. nov.

Basionym: *Stenorrhynchus riograndensis* Krzl. in Svensk Vet. Akad. Handl. 46 (10): 28, 1911.

Sacoila secundiflora (Lillo & Haum.) Garay, comb. nov.

Basionym: *Stenorrhynchus secundiflorus* Lillo & Haum. in Anal. Soc. Cienc. Argent. 90: 134, 1921.

Sacoila squamulosa (H.B.K.) Garay, comb. nov.

Basionym: *Neottia squamulosa* H.B.K., Nov. Gen. et Sp. Pl. 1: 332, 1816.

Sarcoglottis Presl, Rel. Haenk. 1: 95, 1827.

Etymology: *Sarc* = flesh and *glotta* = tongue, describing the texture of the lip in the type specimen.

Syn.: *Narcia* Raf., Fl. Tellur 2: 87, 1827.

Type: *Neottia acaulis* J.E.Sm.

Synoplectris Raf., Fl. Tellur. 2: 89, 1837.

Lectotype: *Neottia grandiflora* Hook., *in hoc loco*.

Sepals very unequal, subparallel with spreading apices; dorsal sepal erect, concave; lateral sepals long-decurrent on ovarian wall without any observable line of adnation, the free apices more or less falcate. Petals agglutinate with dorsal sepal, decurrent at base. Lip unguiculate, distinctly sagittate at base, margins near middle agglutinate with sides of column, usually with a reflexed terminal lobe. Column rather short with a long foot which is embedded full length internally in ovarian tissue and with it the more or less connate lateral sepals form a prominent, internal nectary or cuniculus, not discernible externally; stigmata 2, free to approximate, more or less touching each other in middle; rostellum laminar, soft, ligulate, more or less truncate. Anther ovate, cordate, obtuse; pollinia clavate with large, thick viscidium. Ovary sessile, more or less fusiform, hardly twisted.

Terrestrial plants, very variable in habit. Roots fasciculate, fleshy, tuberous. Leaves, when present, basal, rosulate, subsessile. Scape erect, slender to stout, vaginate, terminated by a few- to many-flowered spike. Flowers fleshy, mostly showy.

TYPE: *Sarcoglottis speciosa* Presl.

35 species native to the New World tropics and subtropics.

Index to species.

- acaulis** (J.E.Sm.) Schltr.
Sarcoglottis acutata (Rchb.f. & Warm.) Garay, comb. nov.
 Basionym: *Spiranthes acutata* Rchb.f. & Warm., *Otia Bot. Hamb.* 2: 84, 1881.
albiflos Schltr. ex Hoehne, Nomen = *Sarcoglottis rupicola* Garay
Alexanderi Schltr. ex Mansf.
Allemanii (Barb.Rodr.) Schltr. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
amazonica Pabst
aphylla (Ridl.) Schltr.
Arrabidae (Rchb.f.) Rchb.f. = *Pelexia Arabidae* (Rchb.f.) Garay
assurgens (Rchb.f.) Schltr.
biflora (Vell.) Schltr.
Bradei Schltr. = *Pelexia Smithii* (Rchb.f.) Garay
butantanensis (Hoehne) Hoehne & Schltr. = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.
camposnovensis (Hoehne) Hoehne = *Sarcoglottis simplex* (Griseb.) Schltr.
cerina (Lindl.) P.N.Don = *Pelexia cerina* (Lindl.) Garay
Cogniauxiana (Barb.Rodr.) Schltr.
Sarcoglottis corymbosa Garay, nom. nov.
 Basionym: *Spiranthes pauciflora* Rich. & Gal. in *Ann. Sci. Nat. ser. 3*, 3: 32 1845, not Raf. 1833.
diaphana (Lindl.) P.N.Don = *Deiregyne diaphana* (Lindl.) Garay
diuretica (Lindl.) P.N.Don = *Brachystele unilateralis* (Poir.) Schltr.
elata (Sw.) P.N.Don = *Beadlea elata* (Sw.) Small
eriophora (Robins. & Greenm.) Conzatti = *Deiregyne eriophora* (Robins. & Greenm.) Garay
fasciculata (Vell.) Schltr.
glaucescens Schltr.
Glazioviana (Cogn.) Schltr. ex Pabst = *Pelexia goyazensis* (Cogn.) Garay
grandiflora (Lindl.) Kl.
gutturosa (Rchb.f.) Ames = *Pelexia gutturosa* (Rchb.f.) Garay
Hassleri (Cogn.) Schltr.
hemichrea (Lindl.) Ames = *Aulosepalum hemichrea* (Lindl.) Garay
Heringeri Pabst
Herzogii Schltr.
homalogastra (Rchb.f. & Warm.) Schltr.
hondurensis (Schltr.) Ames ex Standley & Calderon = *Gularia trilineata* (Lindl.) Garay
Hunterana Schltr. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
imitans Schltr. ex Hoehne, Nomen = *Sarcoglottis simplex* (Griseb.) Schltr.
itararensis (Krzl.) Hoehne
Juergensii Schltr.
latifolia (Rich. & Gal.) Schltr. = *Pelexia Richardiana* (Schltr.) Garay
Lehmannii Garay
lithophila Barb.Rodr. = *Sarcoglottis biflora* (Vell.) Schltr.

lobata (Lindl.) P.N.Don = *Pelexia lobata* (Lindl.) Garay
Maasorum Pabst
magdalensis (Brade & Pabst) Pabst = *Pelexia sancta* (Rchb.f. & Warm.) Garay
metallica (Rolfe) Schltr.
misera (Krzl.) Pabst
multiflora Barb.Rodr. = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
Nelsonii (Greenm.) Conzatti = *Aulosepalum Nelsonii* (Greenm.) Garay
neuroptera (Rchb.f. & Warm.) Schltr.
novofriburgensis (Rchb.f.) Schltr. = *Pelexia novofriburgensis* (Rchb.f.) Garay
oaxacana (Robins. & Greenm.) Conzatti = *Deiregyne diaphana* (Lindl.) Garay
ochracea (Rich. & Gal.) Schltr. = *Sarcoglottis rosulata* (Lindl.) P.N.Don
olivacea (Rolfe) Schltr. = *Beadlea olivacea* (Rolfe) Garay
orbiculata Ames = *Sarcoglottis rosulata* (Lindl.) P.N.Don
ornithocephala Barb.Rodr. = *Sarcoglottis fasciculata* (Vell.) Schltr.
pauciflora (Rich. & Gal.) Schltr. = *Sarcoglottis corymbosa* Garay
Pavonii (Rchb.f.) Schltr. = *Pelexia Pavonii* (Rchb.f.) Garay
picta (R.Br.) Kl. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
Powellii Schltr. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
pubilabia Ames = *Pelexia Schaffneri* (Rchb.f.) Schltr.
pudica (Lindl.) P.N.Don = *Spiranthes sinensis* (Pers.) Ames
Purpusiorum Schltr. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
rosulata (Lindl.) P.N.Don
rufescens Kl. = *Sarcoglottis ventricosa* (Vell.) Hoehne
rupestris Barb.Rodr. = *Sarcoglottis rupicola* Garay
Sarcoglottis rupicola Garay, nom. nov.
Basionym: *Spiranthes rupestris* Barb.Rodr., Gen. et Sp. Orch. Nov. 1: 189, 1877, not Lindl. 1840.
sagittata (Rchb.f. & Warm.) Schltr.
sancta (Rchb.f. & Warm.) Schltr. = *Pelexia sancta* (Rchb.f. & Warm.) Garay
sceptrodes (Rchb.f.) Schltr.
Schaffneri (Rchb.f.) Ames = *Pelexia Schaffneri* (Rchb.f.) Schltr.
Schwackei (Cogn.) Schltr.
simplex (Griseb.) Schltr.
sincorensis (Schltr.) Schltr.
Smithii (Rchb.f.) Schltr. = *Pelexia Smithii* (Rchb.f.) Garay
speciosa Presl = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
tenuiflora (Greenm.) Conzatti = *Aulosepalum tenuiflorum* (Greenm.) Garay
tenuis Schltr. = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.
Thelymitra (Rchb.f.) Ames = *Gularia trilineata* (Lindl.) Garay
uliginosa Barb.Rodr.
umbrosa (Barb.Rodr.) Schltr.
valida Ames = *Pelexia Smithii* (Rchb.f.) Garay
velata (Robins. & Fern.) Conzatti = *Deiregyne velata* (Robins. & Fern.) Garay

ventricosa (Vell.) Hoehne

villosa (Poepp. & Endl.) Schltr.

Sarcoglottis Woodsonii (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes Woodsonii* L.O.Wms. in Ann. Mo. Bot. Gard.
29: 337, 1942.

zamororae Ames = *Pelexia Schaffneri* (Rchb.f.) Schltr.

Satyrium Sw.

adnatum Sw. = *Pelexia adnata* (Sw.) Spreng.

elatum Sw. = *Beadlea elata* (Sw.) Small

orchiodes Sw. = *Sacoila lanceolata* (Aubl.) Garay

spirale Sw. = *Spiranthes torta* (Thunb.) Garay & Sweet

Sauroglossum Lindl. in Bot. Reg. 19: t. 1618, 1833.

Etymology: *Saura* = lizard and *glossa* = tongue. According to Lindley "the leaves may be compared to the tongue of antedeluvian Saurians, and the sepals to those of modern species."

Syn.: *Synassa* Lindl. in Bot. Reg. 19: sub t. 1618, 1833.

Type: *Synassa corymbosa* Lindl.

Sepals subsimilar, unequal, rather fleshy, free; dorsal sepal erect, concave; lateral sepals decurrent on column-foot, and with it form a short, rounded chin. Petals thinner in texture, agglutinate with dorsal sepal. Lip sessile, rather fleshy, with a long, channelled base, cochleate in front, at base with linear, fleshy, marginal or intramarginal thickenings or calli. Column slender, elongate, somewhat dilated above, and with a short, but distinct, obliquely decurrent foot; stigmata 2, lateral on sides of rostellum, separated by a median groove on face of column; rostellum membranaceous, short, broadly triangular which is extended into a thin clinandrium, and with an apical fovea. Anther ovate-umbonate; pollinia clavate with a small, round viscidium. Ovary arcuate, more or less cylindric, subsessile, somewhat twisted.

Terrestrial, tall plants. Roots fasciculate, fleshy, fusiform. Leaves either synanthous or hysteranthous, basal, cuneate petiolate. Stem erect, vaginate, terminated by a loosely to densely many-flowered spike. Flowers small to medium in size, commonly quaquaversal.

TYPE: *Sauroglossum elatum* Lindl.

Nine species native to South America.

Index to species.

andinum (Haum.) Garay
aurantiacum (C. Schweinf.) Garay
candidum Krzl. = *Hapalorchis candidus* (Krzl.) Schltr.
corymbosum (Lindl.) Garay
cranichoides (Griseb.) Ames = *Beadlea cranichoides* (Griseb.) Small
distans Lindl. ex Garay
elatum (Rich.) Ames = *Beadlea elata* (Sw.) Small
elatum Lindl.
longiflorum (Schltr.) Garay
monophyllum (Lindl.) Griseb. 1866 = *Cranichis diphylla* Sw.
monophyllum Griseb. 1879 = *Hapalorchis lineatus* (Lindl.) Schltr.
nigricans Schltr. = *Beadlea cranichoides* (Griseb.) Small
nitidum (Vell.) Schltr.
Richardi Ames = *Beadlea elata* (Sw.) Small
Schweinfurthianum Garay
sellilabre (Griseb.) Schltr.
tenue Lindl. = *Hapalorchis lineatus* (Lindl.) Schltr.

Schiedeella Schltr. in Beih. Bot. Centralbl. 37(2): 379, 1920.

Etymology: In honor of Christian Julius Wilhelm Schiede (1798–1836), a German naturalist and plant collector in Mexico.

Sepals similar, subequal, connivent, subcampanulate, parallel, with more or less arcuately spreading apices; dorsal sepal concave, adnate to back of column above base; lateral sepals with an oblique base adnate to short, decurrent column-foot. Petals linear, agglutinate with dorsal sepal. Lip with a distinct, flat claw without thickened margins and with a calliferous or incrassate, auriculate to cordate base and a fleshy, more or less papillose apical part. Column slender, arcuate, somewhat widened towards apex, at base produced in a sharply curved, decurrent foot; stigmata 2, confluent; rostellum from a narrowly cuneate base sinuously linear-triangular, acuminate. Anther ovate-cordate, acute; pollinia clavate with a short, linear-oblong viscidium. Ovary cylindric to fusiform, somewhat twisted.

Terrestrial, slender plants. Roots fasciculate, fleshy tuberous. Leaves either synanthous or hysternanthous, distinctly petiolate. Stem erect, vaginate, terminated by a loosely few- to many-flowered spike. Flowers small to medium, spirally arranged or quaquaversal.

TYPE: *Spiranthes transversalis* Rich. & Gal. [Schlechter in
Beih. Bot. Centralbl. 37(2): 382, 1920.]

Six species native to Mexico, Guatemala, Honduras, Costa Rica, and the Greater Antilles.

Index to species

albovaginata (C. Schweinf.) Balogh = *Deiregyne albovaginata* (C. Schweinf.)
Garay

Schiedeella Amesiana Garay, nom. nov.

Basionym: *Spiranthes Wrightii* Ames, Orchid. 7: 131, 1922, not Schltr.
1913.

chartacea L.O.Wms. ex Balogh = *Deiregyne chartacea* (L.O.Wms.) Garay
chloreaeformis (Rich. & Gal.) Balogh = *Deiregyne diaphana* (Lindl.) Garay
congestiflora (L.O.Wms.) Balogh = *Funckiella congestiflora* (L.O.Wms.)
Garay

cobanensis (Schltr.) Schltr. = *Kionophyton pyramidalis* (Lindl.) Garay

densiflora (C. Schweinf.) Balogh = *Dithyridanthus densiflorus* (C. Schweinf.)
Garay

eriphora (Robins. & Greenm.) Schltr. = *Deiregyne eriphora* (Robins. &
Greenm.) Garay

falcata (L.O.Wms.) Balogh = *Deiregyne falcata* (L.O.Wms.) Garay

hyemalis (Rich. & Gal.) Balogh = *Funckiella hyemalis* (Rich. & Gal.) Schltr.

Llaveana (Lindl.) Schltr.

michuacana (Llave & Lex.) Balogh = *Stenorrhynchos michuacanum* (Llave
& Lex.) Lindl.

musculicola (Garay & Dunsterv.) Garay & Dunsterv. = *Stalkya musculicola*
(Garay & Dunsterv.) Garay

Schiedeella Nagelii (L.O.Wms.) Garay, comb. nov.

Basionym: *Spiranthes Nagelii* L.O.Wms. in Bot. Mus. Leaflet. 12: 230,
1946.

obtecta (C. Schweinf.) Balogh = *Deiregyne oblecta* (C. Schweinf.) Garay

parasitica (Rich. & Gal.) Schltr.

petiolata Schltr. = *Schiedeella Llaveana* (Lindl.) Schltr.

pseudopyramidalis (L.O.Wms.) Balogh = *Deiregyne pseudopyramidalis*
(L.O.Wms.) Garay

pubicaulis (L.O.Wms.) Balogh = *Lyroglossa pubicaulis* (L.O.Wms.) Garay

pyramidalis (Lindl.) Schltr. = *Kionophyton pyramidalis* (Lindl.) Garay

rubrocallosa (Robins. & Greenm.) Balogh = *Microthelys rubrocallosum*
(Robins. & Greenm.) Garay

saltensis (Ames) Schltr. = *Deiregyne durangensis* (A. & S.) Garay

sparsiflora (C. Schweinf.) Balogh = *Physogyne sparsiflora* (C. Schweinf.)
Garay

stolonifera (Ames & Correll) Balogh = *Funckiella stolonifera* (Ames &
Correll) Garay

tenella (L.O.Wms.) Balogh = *Deiregyne tenella* (L.O.Wms.) Garay

trilineata (Lindl.) Balogh = *Gularia trilineata* (Lindl.) Garay
transversalis (Rich. & Gal.) Schltr. = *Schiedeella Llaveana* (Lindl.) Schltr.
velata (Robins. & Fern.) Schltr. = *Deiregyne velata* (Robins. & Fern.) Garay

Schiedeella violacea (Rich. & Gal.) Garay, comb. nov.

Basionym: *Spiranthes violacea* Rich. & Gal. in Ann. Sci. Nat. ser. 3, 3: 32, 1845.

Schiedeella Wercklei (Schltr.) Garay, comb. nov.

Basionym: *Spiranthes Wercklei* Schltr. in Fedde, Rep. 10: 482, 1911.

Serapias L.

aphylla Vell. = *Pelexia Arrabidae* (Rchb.f.) Garay

biflora Vell. = *Sarcoglottis biflora* (Vell.) Schltr.

coccinea Vell. = *Sacoila lanceolata* (Aubl.) Garay

congesta Vell. = *Beadlea congesta* (Vell.) Garay

fasciculata Vell. = *Sarcoglottis fasciculata* (Vell.) Schltr.

Neottia Gmel. = *Sacoila lanceolata* (Aubl.) Garay

nitida Vell. = *Sauroglossum nitidum* (Vell.) Schltr.

polyaden Vell. = *Stigmatosema polyaden* (Vell.) Garay

speciosa (Jacq.) Gmel. = *Stenorrhynchos speciosum* (Jacq.) L.C.Rich. ex Spreng.

spiralis (L.) Scop. = *Spiranthes spiralis* (L.) Chevall.

tomentosa Vell. = *Sacoila lanceolata* (Aubl.) Garay

ventricosa Vell. = *Sarcoglottis ventricosa* (Vell.) Hoehne

Skeptrostachys Garay, gen. nov.

Etymology: *Skeptron* = baton and *stachys* = spike, in allusion of appearance of the inflorescence in most species.

Sepala dissimilia, conniventia, subparallela, apicibus leviter arcuato-patentibus; sepalo postico valde cucullato, libero; sepalis lateralibus obliquis, pedi columnae decurrentibus. Petala margine interiore sepalo intermedio agglutinata, plus minusve sinuosa, basi decurrentia. Labellum plus minusve sigmoideum, basi conduplicatum, marginibus calloso-incrassatis; lamina recurva, margines in medio utrinque lateribus columnae agglutinatae. Columna brevis, cylindrica, basi in pedem longum, decurrentem producta; stigmata 2, confluentia vel V-formia; rostellum rigidum, acuminatissimum, basi utrinque obscure unidentatum. Anthera cucullata vel umbonata; pollinia clavata, viscidio lineari affixa. Ovarium oblique ovoideum vel fusiforme.

Plantae terrestres, elatae; radicibus fasciculatis, crassiusculis, stipitatis; foliis plerumque basilaribus; sursum in bracteas transeuntibus; caulibus erectis, supra multifloris; rhachide cylindrica, satis densiflora; floribus inter mediocres, haud ringentibus.

Sepals dissimilar, connivent, subparallel, with somewhat arcuately spreading apices; dorsal sepal deeply cucullate, free from column; lateral sepals oblique and decurrent on column-foot. Petals agglutinate with dorsal sepal, more or less sinuous, with a decurrent base. Lip more or less sigmoid with a conduplicate base of which the margins callose-thickened; the main blade is recurved and in middle the margins agglutinate with sides of column. Column short, cylindric, basally produced in a long, decurrent foot; stigmata 2, confluent or V-shaped; rostellum rigid, very sharply pointed and at base on both sides provided rather obscurely with a tooth. Anther cucullate or umbonate; pollinia clavate with a linear viscidium. Ovary obliquely ovoid or fusiform.

Terrestrial, tall plants. Roots fasciculate, fleshy-thickened, stipitate. Leaves mostly basal or near base, decreasing upward into bracts. Stem erect, terminated by a many-flowered, cylindrical, rather densely-flowered spike. Flowers medium in size with hardly ringent sepals.

TYPE: *Spiranthes rupestris* Lindl.

12 species native to Brazil and adjacent countries to south and southeast.

Index to species.

Skeptrostachys Arechavaletanii (Barb.Rodr.) Garay, comb. nov.

Basionym: *Stenorrhynchus Arechavaletanii* Barb.Rodr. in Contr. Jard.Bot. Rio 4: 99, 1907.

Skeptrostachys balanophorostachya (Rchb.f. & Warm.) Garay, comb. nov.

Basionym: *Spiranthes balanophorostachya* Rchb.f. & Warm., Otia Bot. Hamb. 2: 54, 1881.

Skeptrostachys Berroana (Krzl.) Garay, comb. nov.

Basionym: *Stenorrhynchus Berroanus* Krzl. in Svensk Vet. Akad. Handl. 46(10): 26, 1911.

Skeptrostachys congestiflora (Cogn.) Garay, comb. nov.

Basionym: *Stenorrhynchus congestiflorus* Cogn. in Mart., Fl. Bras. 3(4): 539, 1895.

Skeptrostachys disoides (Krzl.) Garay, comb. nov.

Basionym: *Spiranthes disoides* Krzl. in Svensk Vet. Akad. Handl. 46(10): 33, 1911.

Skeptrostachys gigantea (Cogn.) Garay, comb. nov.

Basionym: *Stenorrhynchus giganteus* Cogn. in Mart., Fl. Bras. 3(6): 533, 1906.

Skeptrostachys latipetala (Cogn.) Garay, comb. nov.

Basionym: *Stenorrhynchus latipetalus* Cogn. in Bull. Soc. Roy. Belg. 43: 286, 1907.

Skeptrostachys montevidensis (Barb.Rodr.) Garay, comb. nov.

Basionym: *Stenorrhynchus montevidensis* Barb. Rodr. in Contr. Jard. Bot. Rio 4: 98, 1907.

Skeptrostachys paraguayensis (Rchb.f.) Garay, comb. nov.

Basionym: *Spiranthes paraguayensis* Rchb.f. in Linnaea 25: 230, 1852.

Skeptrostachys paranahybae (Krzl.) Garay, comb. nov.

Basionym: *Spiranthes paranahybae* Krzl. in Ann. Nat. Hist. Mus. Wien 27: 110, 1913.

Skeptrostachys rupestris (Lindl.) Garay, comb. nov.

Basionym: *Spiranthes rupestris* Lindl., Gen and Sp. Orch. Pl. 474, 1840.

Skeptrostachys Sancti-Jacobi (Krzl.) Garay, comb. nov.

Basionym: *Stenorrhynchus Sancti-Jacobi* Krzl. in Fedde, Rep. 6: 22, 1908.

Spiranthes L.C.Rich., Orch. Europ. Annot. 20, 1817, *nom. cons.*

Etymology: *Speira* = coil and *anthos* = flower, in reference to the spirally twisted inflorescence of the plants originally assigned to the genus.

Syn.: *Orchiastrum* Seguiet, Pl. Veron. Suppl. 252, 1754.

Type: *Ophrys spiralis* L.

Aristotelea Lour., Fl. Cochinch. 2: 522, 1790, not L'Herit. 1784.

Type: *Aristotelea spiralis* Lour.

Tussacia Raf. ex Desv., Obs. Pl. Environ. Angers 91, 1818, not *Tussaca* Raf.

Lectotype: *Ophrys spiralis* L. *in hoc loco*.

Monustes Raf., Fl. Tellur 2: 87, 1837.

Type: *Neottia australis* R. Br.

Gyrostachys Pers. ex Bl., Coll. Orch. 127, 1859.

Lectotype: *Ophrys spiralis* L. *in hoc loco*

Ibidium Salisb. ex Small, Fl. SE United States, ed. 2, 318, 1913.

Lectotype: *Ophrys spiralis* L. [House in Bull. Torr. Bot. Cl. 32: 380, 1905]

Triorchis Petiver ex Nieuwl. in Amer. Midl. Nat. 3: 122, 1913.

Type: *Ophrys spiralis* L. [Petiver, Opera 2: Ray's English Herb. and Cat., t. 68, f.7, 1764]

Sepals rather similar, free, connivent, with somewhat arcuately spreading apices; dorsal sepal concave to cucullate; lateral sepals oblique, but without a decurrent base. Petals agglutinate with dorsal sepal, oblique at base. Lip fleshy, broadly unguiculate, concave to conduplicate, recurved at more or less undulate-crispate apex, basally provided on each side of the claw with a marginal or intramarginal, more or less conical, falcate callus, the sides agglutinate with sides of column. Column relatively short, cylindric, arcuately expanded upwards, basally produced in a short, incurved foot; stigmata 2, confluent, bilobed; rostellum divided into two distinct, sharply pointed or filiform segments. Anther cordate, acute to obtuse, rather deeply concave; pollinia clavate with linear-oblong viscidium. Ovary sessile, cylindric to fusiform, twisted.

Terrestrial, slender plants. Roots fasciculate, tuberous or fusiform, fleshy. Leaves synanthous or proteranthous, commonly basal or near to base, rarely cauline. Scape slender, erect, vaginate, terminated by a loosely- to densely-flowered inflorescence which is arranged in a single or double spiral. Flowers rather small.

LECTOTYPE: *Ophrys spiralis* L. [Greene, Prop. Brit. Bot. 100, 1929]

42 species native mostly to the temperate regions of North America and Eurasia with representatives in Australia, New Caledonia and New Zealand; a few species are native to the tropical and subtropical regions of Central America, West Indies, northern part of South America, as well as various regions of Malaysia, from Malaya to New Guinea.

Index to species

abyssinica Hochst. ex A. Rich. = *Deroemera squamata* Rchb.f.
 acaulis (J.E.Sm.) Cogn. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
 actinosophila Barb.Rodr. = *Eurystyles actinosophila* (Barb.Rodr.) Schltr.
 acutata Rchb.f. & Warm. = *Sarcoglottis acutata* (Rchb.f. & Warm.) Garay
 adnata (Sw.) Benth. ex Fawc. = *Pelexia adnata* (Sw.) Spreng.
 aestivalis Oakes = *Spiranthes lucida* (H.H. Eaton) Ames
aestivalis (Poir.) L.C.Rich.
 affinis C. Schweinf. = *Mesadenus affinis* (C. Schweinf.) Garay
 africana Lindl. = *Benthamia spiralis* (Thou.) A. Rich.

aguacatensis Rchb.f. = *Brachystele guayanensis* (Lindl.) Schltr.
 albescens Barb.Rodr. = *Pteroglossa macrantha* (Rchb.f.) Schltr.
 albovaginata C. Schweinf. = *Deiregyne albovaginata* (C. Schweinf.) Garay
 alexandrae Krzl. = *Beadlea alexandrae* (Krzl.) Garay
 Allemanii (Barb.Rodr.) Cogn. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
 alpestris Barb.Rodr. = *Beadlea congesta* (Vell.) Garay
 amabilis Ames = *Hapalorchis lineatus* (Lindl.) Schltr.
 amblysepala Krzl. = *Beadlea diversifolia* (Cogn.) Garay
 Amesiana Schltr. = *Spiranthes torta* (Thunb.) Garay & Sweet
amoena (Bieb.) Spreng.
angustilabris J.J.Sm.
 annua Lesq. = *Spiranthes cernua* (L.) L.C.Rich.
 aphylla (Ridl.) Cogn. 1895 = *Sarcoglottis aphylla* (Ridl.) Schltr.
 aphyllus (Hook.) Krzl. = *Sacoila lanceolata* (Aubl.) Garay
 apiculata Lindl. = *Spiranthes torta* (Thunb.) Garay & Sweet
 aprica Lindl. = *Beadlea aprica* (Lindl.) Garay
 Arechavaetae Krzl. = *Brachystele Arechavaetae* (Krzl.) Schltr.
 argyriifolia Barb.Rodr. = *Beadlea argyriifolia* (Barb.Rodr.) Garay
 Aristotelia (Raeusch) Merrill = *Spiranthes sinensis* (Pers.) Ames
 Arrabidae Warm. = *Pelexia Arrabidae* (Rchb.f. & Warm.) Garay
 Arseniana Krzl. = *Pelexia Schaffneri* (Rchb.f.) Schltr.
 assurgens Rchb.f. = *Sarcoglottis assurgens* (Rchb.f.) Schltr.
 atramentaria Krzl. = *Brachystele Widgrenii* (Rchb.f.) Schltr.
 atroviridis (Barb.Rodr.) Cogn. = *Mesadenella atroviridis* (Barb.Rodr.)
 Garay
 aurantiaca (Llave & Lex.) Hemsl. = *Stenorrhynchos aurantiacum* (Llave &
 Lex.) Lindl.
 australis (R.Br.) Lindl. = *Spiranthes sinensis* (Pers.) Ames
 australis Wight = *Spiranthes sinensis* (Pers.) Ames
 autumnalis (Balb.) L.C.Rich = *Spiranthes spiralis* (L.) Chevall.
 balanophorostachya Rchb.f. & Warm. = *Skeptrostachys balanophoro-*
stachya (Rchb.f. & Warm.) Garay
 Bangii Rolfe = *Odontorrhynchus chlorops* (Rchb.f.) Garay
 Barrancae Esposto = *Pelexia Pavonii* (Rchb.f.) Garay
 Beckii Lindl. = *Spiranthes lacera* (Raf.) Raf.
 bicaudata Ames = *Beloglottis bicaudata* (Ames) Garay
 bicolor Griseb. = *Lyroglossa Grisebachii* (Cogn.) Schltr.
 bicolor (Ker-Gawl.) Lindl. = *Beadlea bicolor* (Ker-Gawl.) Garay
 bicolor Raf. = *Spiranthes sinensis* (Pers.) Ames
 bifida Ridl. = *Helonoma bifida* (Ridl.) Garay
 biflora (Vell.) Cogn. = *Sarcoglottis biflora* (Vell.) Schltr.
 bonariensis Lindl. = *Pelexia bonariensis* (Lindl.) Schltr.
 bracteolaris Krzl. = *Stenorrhynchos michuacanum* (Llave & Lex.) Lindl.
 bracteosa Lindl. = *Brachystele bracteosa* (Lindl.) Schltr.
 bracteosa (A. & S.) L.O.Wms. = *Coccineorchis bracteosa* (A. & S.) Garay
 Brenesii Schltr. = *Brachystele guayanensis* (Lindl.) Schltr.
brevicaulis Raf. = *incerta sedis*
 brevifolia Chapm. = *Spiranthes longilabris* Lindl.
brevilabris Lindl.
 butantanensis Hoehne = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.

calcarata (Sw.) Jiménez = *Eltroplectris calcarata* (Sw.) Garay & Sweet
callifera C. Schweinf. = *Pelexia callifera* (C. Schweinf.) Garay
calophylla Barb.Rodr. = *Beadlea calophylla* (Barb.Rodr.) Garay
camporum Lindl. = *Brachystele camporum* (Lindl.) Schltr.
camposnovensis Hoehne = *Sarcoglottis simplex* (Griseb.) Schltr.
Canterae Barb.Rodr. = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
Casei Catling & Cruise
Castillonii (Haum.) L.O.Wms. = *Odontorrhynchus Castillonii* (Haum.) Correa
ceracifolia Barb.Rodr. = *Lankesterella ceracifolia* (Barb.Rodr.) Mansf.
cerina Lindl. = *Pelexia cerina* (Lindl.) Garay
cernua (L.) L.C.Rich.
chartacea L.O.Wms. = *Deiregyne chartacea* (L.O.Wms.) Garay
cheirostyloides (Schltr.) C. Schweinf. = *Hapalorchis cheirostyloides* Schltr.
Chiangii Johnst. = *Mesadenus Chiangii* (Johnst.) Garay
chilensis A. Rich = *Odontorrhynchus chilensis* (A.Rich.) Garay
chloreaeformis Rich. & Gal. = *Deiregyne diaphana* (Lindl.) Garay
chloroleuca Barb. Rodr. = *Stigmatosema polyaden* (Vell.) Garay
chlorops Rchb.f. = *Odontorrhynchus chlorops* (Rchb.f.) Garay
cinnabarina (Llave & Lex.) Hemsl. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
cobanensis Schltr. = *Kionophyton pyramidalis* (Lindl.) Garay
coccinea Garay = *Coccineorchis cernua* (Lindl.) Garay
Cogniauxiana Barb.Rodr. = *Sarcoglottis Cogniauxiana* (Barb.Rodr.) Schltr.
colorans N.E.Br. ex Hemsl. = *Stenorrhynchus speciosum* (Jacq.) L.C.Rich. ex Spreng.
colorata N.E.Br. = *Stenorrhynchus speciosum* (Jacq.) L.C. Rich ex Spreng.
colorata (Bl.) Hassk. = *Goodyera colorata* Bl.
comosa Rchb.f. = *Beadlea comosa* (Rchb.f.) Hamer & Garay
congesta Lindl.
congestiflora L.O.Wms. = *Funckiella congestiflora* (L.O.Wms.) Garay
constricta (Small) Schumann = *Spiranthes odorata* (Nutt.) Lindl.
cordatiloba C. Schweinf. = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.
corymbosa Krzl. = *Coccineorchis cernua* (Lindl.) Garay
costaricensis Rchb.f. = *Beloglottis costaricensis* (Rchb.f.) Schltr.
cranichoides (Griseb.) Cogn. = *Beadlea cranichoides* (Griseb.) Small
crispata (Bl.) Zoll. & Morr. = *Spiranthes sinensis* (Pers.) Ames
cuculligera Rchb.f. & Warm. = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.
curvicalcarata C. Schweinf. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
cuspidata Lindl. = *Mesadenella cuspidata* (Lindl.) Garay
cyclochila Krzl. = *Brachystele cyclochila* (Krzl.) Schltr.
cylindrica Lindl. apud Schltr. = *Kionophyton pyramidalis* (Lindl.) Garay
decipiens Hook. = *Goodyera oblongifolia* Raf.
decora Garay = *Pelexia decora* (Garay) Garay
delicatula Krzl. = *Brachystele delicatula* (Krzl.) Schltr.

dendroneura Sheviak & Bye = Deiregyne dendroneura (Sheviak & Bye)

Garay

densa A. Rich. = Spiranthes Wightiana Lindl.

densiflora C. Schweinf. = Dithyridanthus densiflorus (C. Schweinf.) Garay

diaphana Lindl. = Deiregyne diaphana (Lindl.) Garay

dilatata Lindl. = Brachystele dilatata (Lindl.) Schltr.

disoides Krzl. = Skeptrostachys disoides (Krzl.) Garay

diuretica (Willd.) Lindl. = Brachystele unilateralis (Poir.) Schltr.

diversifolia Cogn. = Beadlea diversifolia (Cogn.) Garay

durangensis A. & S. = Deiregyne durangensis (A. & S.) Garay

ecalloso A. & S. = Beloglottis ecalloso (A. & S.) Hamer & Garay

Ekmanii (Krzl.) Haum. = Pelexia Ekmanii (Krzl.) Schltr.

elata (Sw.) L.C.Rich. = Beadlea elata (Sw.) Small

eldorado Linden & Rchb.f. = Beadlea eldorado (Linden & Rchb.f.) Garay

Emiliae Johnst. = Pelexia Schaffneri (Rchb.f.) Schltr.

ensifolia Rchb.f. = Spiranthes vernalis Engelm. & Gray

epiphyta Barb.Rodr. = Lankesterella caespitosa (Lindl.) Hoehne

epiphytica Schltr. = Beadlea Prasophyllum (Rchb.f.) Hamer & Garay

eriphora Robins. & Greenm. = Funckia eriophora (Robins. & Greenm.)

Garay

esmeralda Linden & Rchb.f. = Mesadenella cuspidata (Lindl.) Garay

Eugenii Rchb.f. & Warm. = Beadlea Eugenii (Rchb.f. & Warm.) Garay

euglossa Krzl. = Lyroglossa Grisebachii (Cogn.) Schltr.

euphlexia Rchb.f. = Pteroglossa euphlexia (Rchb.f.) Garay

excelsa Krzl. = Sauroglossum nitidum (Vell.) Schltr.

exigua Rolfe = Hetaeria exigua (Rolfe) Schltr.

falcata L.O.Wms. = Deiregyne falcata (L.O.Wms.) Garay

fasciculata (Vell.) Cogn. = Sarcoglottis fasciculata (Vell.) Schltr.

fauci-sanguinea Dod = Schiedeella parasitica (Rich. & Gal.) Schltr.

Fawcettii Cogn. = Hapalorchis lineatus (Lindl.) Schltr.

flexuosa (J.E.Sm.) Lindl. 1824 = Spiranthes sinensis (Pers.) Ames

flexuosa (J.E.Sm.) Raf. 1837 = Spiranthes sinensis (Pers.) Ames

flexuosa Raf. 1833 = *incerta sedis*

floridana (Wherry) Cory

Funckiana Rich. & Gal. = Pelexia Funckiana (Rich. & Gal.) Schltr.

Galeottiana Rich. & Gal. = Mesadenus polyanthus (Rchb.f.) Schltr.

Gardneri Lindl. ex Gardn. = Eurystyles Gardneri (Lindl. ex Gardn.) Garay

gemmaipara (J.E.Sm.) Lindl. = Spiranthes Romanzoffiana Cham.

glabrescens Hashimoto = Beadlea glabrescens (Hashimoto) Garay

glauca Raf. = Spiranthes spiralis (L.) Chevall.

goninensis (Pulle) C. Schweinf. = Pelexia goninensis (Pulle) Schltr.

Gonzalesii L.O.Wms. = Physogyne Gonzalesii (L.O.Wms) Garay

goodyeroides Schltr. = Beadlea goodyeroides (Schltr.) Garay

goyazensis Cogn. = Pelexia goyazensis (Cogn.) Garay

gracilis (Bigel.) Beck = Spiranthes lacera (Raf.) Raf.

gracilis (Bl.) Hassk. 1844 = Chlorosa gracilis Bl.

graminea Lindl.

grandiflora Lindl. = Sarcoglottis grandiflora (Lindl.) Kl.

grandis (Bl.) Hassk. = Goodyera grandis (Bl.) Bl.

Grayi Ames = *Spiranthes tuberosa* Raf.
 Grisebachii Cogn. = *Lyroglossa Grisebachii* (Cogn.) Schltr.
 gutturosa Rchb.f. = *Pelexia gutturosa* (Rchb.f.) Garay
 guayanensis (Lindl.) Cogn. = *Brachystele guayanensis* (Lindl.) Schltr.
 hamata (Schltr.) C. Schweinf. = *Pelexia hamata* Schltr.
 Hassleri Cogn. = *Sarcoglottis Hassleri* (Cogn.) Schltr.
 hemichrea Lindl. = *Aulosepalum hemichrea* (Lindl.) Garay
 hirta Lindl. = *Pelexia hirta* (Lindl.) Schltr.
 homalogastra Rchb.f. & Warm. = *Sarcoglottis homalogastra* (Rchb.f. & Warm.) Schltr.
 hondurensis Schltr. = *Gularia trilineata* (Lindl.) Garay
hongkongensis S.Y.Hu & Barretta
 Hostmannii Rchb.f. ex Griseb. = *Brachystele guayanensis* (Lindl.) Schltr.
 hyemalis Rich. & Gal. = *Funckiella hyemalis* (Rich. & Gal.) Schltr.
 hypnophila Barb.Rodr. = *Pelexia novofriburgensis* (Rchb.f.) Garay
 hysterantha Barb.Rodr. = *Pelexia hysterantha* (Barb.Rodr.) Schltr.
icmadophila Barb.Rodr. = *incerta sedis*
 inaequilatera Poepp. & Endl. = *Beadlea inaequilatera* (Poepp. & Endl.) Garay
 indica Lindl. ex Steud. = *Spiranthes sinensis* (Pers.) Ames
X intermedia Ames
 itararensis Krzl. = *Sarcoglottis itararensis* (Krzl.) Hoehne
 itatiaiensis Krzl. = *Beadlea itatiaiensis* (Krzl.) Garay
 jaliscana Watson = *Sacoila lanceolata* (Aubl.) Garay
lacera (Raf.) Raf.
laciniata (Small) Ames
 lancea (Thunb.) Back., Bakh. & van Steen. = *Herminium lanceum* (Thunb.) Vuijk
 lanceolata (Aubl.) Leon = *Sacoila lanceolata* (Aubl.) Garay
 Lankesteri Standl. & L.O.Wms. = *Hapalorchis pumilis* (C. Schweinf.) Garay
 lanuginosa Rich. & Gal. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.
 latifolia Rich. & Gal. 1845 = *Pelexia Richardiana* (Schltr.) Garay
 latifolia Torr. ex Lindl. 1840 = *Spiranthes lucida* (H.H.Eaton) Ames
 laxa (Poepp. & Endl.) C. Schweinf. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
 laxiflora (Ekman & Mansf.) Jiménez = *Beadlea laxiflora* (Ekman & Mansf.) Garay
 laxiflora Raf. 1837 = *Spiranthes torta* (Thunb.) Garay & Sweet
 Lechleri (Schltr.) C. Schweinf. = *Brachystele unilateralis* (Poir.) Schltr.
 leucosticta Rchb.f. = *Pelexia novofriburgensis* (Rchb.f.) Garay
 Lindleyana Link, Kl. & Otto = *Beadlea Lindleyana* (Link, Kl. & Otto) Garay & Dunsterv.
 Lindmaniana Krzl. = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.
 lineata Lindl. = *Hapalorchis lineatus* (Lindl.) Schltr.
 lithophila Barb.Rodr. = *Sarcoglottis biflora* (Vell.) Schltr.
 Llaveana Lindl. = *Schiedeella Llaveana* (Lindl.) Schltr.
 lobata Lindl. = *Pelexia lobata* (Lindl.) Garay
 longiauriculata C. Schweinf. = *Sarcoglottis simplex* (Griseb.) Schltr.

longibracteata Barb.Rodr. = *Beadlea longibracteata* (Barb.Rodr.) Garay
longifolia (Bl.) Hassk. = *Lepidogyne longifolia* (Bl.) Bl.
longilabris Lindl.
longipetiolata Rchb.f. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
longispicata A. Rich. = *Spiranthes sinensis* (Pers.) Ames
lucayana (Britt.) Cogn. = *Mesadenus lucayanus* (Britt.) Schltr.
lucida (H.H.Eaton) Ames
lupulina (Lindl.) Hemsl. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.
luteo-alba Rich. & Gal. = *Beadlea luteo-alba* (Rich. & Gal.) Garay
Lutzi (Pabst) Jones = *Cotylolabium Lutzii* (Pabst) Garay
macrantha Rchb.f. = *Pteroglossa macrantha* (Rchb.f.) Schltr.
macrophylla (Don) Spreng. = *Herminium macrophyllum* (Don) Dandy
macropoda Barb.Rodr. = *Pelexia macropoda* (Barb.Rodr.) Schltr.
marcostachya Poepp. & Endl. = *Stenoptera macrostachya* (Poepp. & Endl.) Rchb.f.
maculata (Rolfe) C. Schweinf. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
madrensis (Rchb.f.) Hemsl. = *Stenorrhynchos michuacanum* (Llave & Lex.) Lindl.
magnicamporum Sheviak
Madonii Rchb.f. = *Pelexia Mandonii* (Rchb.f.) Schltr.
margaritifera Linden & Rchb.f. = *Mesadenella margaritifera* (Linden & Rchb.f.) Garay
matucanensis Krzl. = *Pelexia matucanensis* (Krzl.) Schltr.
metallica Rolfe = *Sarcoglottis metallica* (Rolfe) Schltr.
michuacana (Llave & Lex.) Hemsl. = *Stenorrhynchos michuacanum* (Llave & Lex.) Lindl.
micrantha Barb.Rodr. = *Hapalorchis micranthus* (Barb.Rodr.) Hoehne
Millei Schltr. = *Beadlea Millei* (Schltr.) Garay
minutiflora Rchb.f. = *Beadlea peruviana* (Presl) Garay
minutiflora Rich. & Gal. = *Microthelys minutiflora* (Rich. & Gal.) Garay
misera Krzl. = *Sarcoglottis misera* (Krzl.) Pabst
monophylla (Lindl.) Cogn. = *Cranichis diphylla* Sw.
monophylla (Don) Spreng. = *Herminium monophyllum* (Don) Hunt & Summerh.
montana Raf. 1833 = ?*Spiranthes ovalis* Lindl.
montana Rich. & Gal. 1845 = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
montana (Lindl.) Hemsl. 1884 = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
multiflora Barb.Rodr. ex Jackson = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
musciola Garay & Dunsterv. = *Stalkya musciola* (Garay & Dunsterv.) Garay
Nagelii L.O.Wms. = *Schiedeella Nagelii* (L.O.Wms.) Garay
navarrensis (Ames) L.O.Wms. = *Coccineorchis navarrensis* (Ames) Garay
neglecta Ames = *Spiranthes vernalis* Engelm. & Gray
Nelsonii Greenm. = *Aulosepalum Nelsonii* (Greenm.) Garay
neo-caledonica Schltr.

neottiorhiza Krzl. = *Pelexia neottiorhiza* (Krzl.) Pabst
neuroptera Rchb.f. & Warm. = *Sarcoglottis neuroptera* (Rchb.f. & Warm.) Schltr.
nitida (Vell.) Cogn. = *Sauroglossum nitidum* (Vell.) Schltr.
Novae-Zelandiae Hook.f. = *Spiranthes sinensis* (Pers.) Ames
novofriburgensis (Rchb.f.) Rchb.f. = *Pelexia novofriburgensis* (Rchb.f.) Garay
Nuñal L.C.Rich. = *Brachystele unilateralis* (Poir.) Schltr.
nutans (Kunth & Bouche) Garay & Dunsterv. = *Stenorrhynchos nutans* Kunth & Bouche
nutantiflora Schltr. = *Microthelys nutantiflora* (Schltr.) Garay
oaxacana Robins. & Greenm. = *Deiregyne diaphana* (Lindl.) Garay
obliqua J.J.Sm. = *Pelexia obliqua* (J.J.Sm.) Garay
obtecta C. Schweinf. = *Deiregyne obtecta* (C. Schweinf.) Garay
obtusa Schltr. = *Aulosepalum Nelsonii* (Greenm.) Garay
ochracea Rich. & Gal. = *Sarcoglottis rosulata* (Lindl.) P.N.Don
ochroleuca (Rydb.) Rydb.
odorata (Nutt.) Lindl.
oestivalis Boiss. Sphalm. = *Spiranthes aestivalis* (Poir.) L.C.Rich.
oestriifera Rchb.f. & Warm. = *Pelexia oestriifera* (Rchb.f. & Warm.) Schltr.
oligantha Hoehne = *Beadlea oligantha* (Hoehne) Garay
olivacea Rolfe = *Beadlea olivacea* (Rolfe) Garay
orchioidea (Sw.) A. Rich. = *Sacoila lanceolata* (Aubl.) Garay
ornithocephala (Barb.Rodr.) Jackson = *Sarcoglottis fasciculata* (Vell.) Schltr.
orthantha Krzl. = *Lankesterella orthantha* (Krzl.) Garay
orthosepala Rchb.f. & Warm. = *Pelexia orthosepala* (Rchb.f. & Warm.) Schltr.
ovalis Lindl.
pachychila Krzl. = *Sauroglossum nitidum* (Vell.) Schltr.
pachyrhiza Krzl. = *Pelexia matucanensis* (Krzl.) Schltr.
paludosa Cogn. = *Beadlea aprica* (Lindl.) Garay
Pamii Braid = *Beadlea Lindleyana* (Link, Kl. & Otto) Garay & Dunsterv.
papuana Schltr.
paraguayensis Rchb.f. = *Skeptrostachys paraguayensis* (Rchb.f.) Garay
paranahybae Krzl. = *Skeptrostachys paranahybae* (Krzl.) Garay
parasitica Rich. & Gal. = *Schiedeella parasitica* (Rich. & Gal.) Schltr.
Parksii Correll
parviflora (Chapm.) Ames = *Spiranthes ovalis* Lindl.
parviflora (Bl.) Hassk. 1844 = *Goodyera parviflora* (Bl.) Bl.
parviflora (J.E.Sm.) Lindl. 1824 = *Spiranthes sinensis* (Pers.) Ames
parviflora (J.E.Sm.) Raf. 1837 = *Spiranthes sinensis* (Pers.) Ames
pauciflora Raf. 1833 = *incerta sedis*
pauciflora Rich. & Gal. 1845 = *Sarcoglottis corymbosa* Garay
pauciflora (Rchb.f.) Hemsl. 1884 = *Funckia hyemalis* (Rich. & Gal.) Schltr.
Pavonii Rchb.f. = *Pelexia Pavonii* (Rchb.f.) Garay
pedicellata Cogn. = *Brachystele pedicellata* (Cogn.) Garay
peruviana Presl = *Beadlea peruviana* (Presl) Garay

petenensis L.O.Wms. = *Mesadenella petenensis* (L.O.Wms.) Garay
petiolaris Raf. = *incerta sedis*
 Petola (Bl.) Hassk. = *Macodes Petola* (Bl.) Lindl.
 picta (R.Br.) Lindl. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
 plantaginea (Raf.) Raf. = *Spiralis lucida* (H.H.Eaton) Ames
 plantaginea Lindl. 1840 = *Beadlea plantaginea* Garay
 plantaginea (Don) Spreng. 1826 = *Malaxis latifolia* J.E.Sm.
 plantaginea Torr. 1843 = *Spiranthes lucida* (H.H.Eaton) Ames
 polyantha Rchb.f. = *Mesadenus polyanthus* (Rchb.f.) Schltr.
 porphyricola Schltr. = *Microthelys rubrocallosa* (Robins. & Greenm.) Garay
porrifolia Lindl.
praecox (Walt.) Wats.
 Prasophyllum Rchb.f. = *Beadlea Prasophyllum* (Rchb.f.) Hamer & Garay
 Preslii Lindl. = *Cyclopogon ovalifolium* Presl
 Pringlei Wats. = *Beadlea saccata* (Rich. & Gal.) Garay
 pseudogoodyerioides L.O.Wms. = *Pseudogoodyera Wrightii* (Rchb.f.) Schltr.
 pseudopyramidalis L.O.Wms. = *Deiregyne pseudopyramidalis* (L.O.Wms.) Garay
 pterygantha Rchb.f. & Warm. = *Pelexia pterygantha* (Rchb.f. & Warm.) Schltr.
 pubens Rich. & Gal. = *Stenorrhynchos pubens* (Rich. & Gal.) Schltr.
 pubescens Barb.Rodr. = *Beadlea bicolor* (Ker-Gawl.) Garay
 pubicaulis L.O.Wms. = *Lyroglossa pubicaulis* (L.O.Wms.) Garay
 pudica Lindl. = *Spiranthes sinensis* (Pers.) Ames
 pulchra Schltr. = *Aulosepalum hemichrea* (Lindl.) Garay
 pumila C. Schweinf. = *Hapalorchis pumilus* (C. Schweinf.) Garay
pusilla Miq.
 pyramidalis Lindl. = *Kionophyton pyramidalis* (Lindl.) Garay
 quadridentata (Willd.) Lindl. = *Spiranthes torta* (Thunb.) Garay & Sweet
 quinquelobata (Poir) Urb. = *Spiranthes torta* (Thunb.) Garay & Sweet
 ramentacea Lindl. = *Aulosepalum ramentaceum* (Lindl.) Garay
 Reichenbachiana Garay & Dunsterv. = *Beadlea peruviana* (Presl) Garay
 Reverchonii (Small) Schumann = *Spiranthes vernalis* Engelm. & Gray
 Richardi Autr. & Durand = *Stenorrhynchos speciosum* (Jacq.) L.C.Rich. ex Spreng.
 Richardiana Schltr. = *Pelexia Richardiana* (Schltr.) Garay
 Rimbachii (Schltr.) C. Schweinf. = *Beadlea Rimbachii* (Schltr.) Garay
 Rodriguesii Cogn. = *Beadlea longibracteata* (Barb.Rodr.) Garay
Romanzoffiana Cham.
 rosulata Lindl. = *Sarcoglottis rosulata* (Lindl.) P.N.Don
 rotundifolia Cogn. = *Discyphus scopulariae* (Rchb.f.) Schltr.
 rubrocallosa Robins. & Greenm. = *Microthelys rubrocallosa* (Robins. & Greenm.) Garay
 rufescens Fisch. ex Kl. = *Sarcoglottis ventricosa* (Vell.) Hoehne
 rupestris Lindl. 1840 = *Skeptrostachys rupestris* (Lindl.) Garay
 rupestris Barb.Rodr. 1877 = *Sarcoglottis rupicola* Garay
 saccata Rich. & Gal. = *Beadlea saccata* (Rich. & Gal.) Garay

sagittata Rchb.f. & Warm. = *Sarcoglottis sagittata* (Rchb.f. & Warm.) Schltr.
saltensis Ames = *Deiregyne durangensis* (A. & S.) Garay
saltensis Griseb. = *Pelexia saltensis* (Griseb.) Schltr.
sancta Rchb.f. & Warm. = *Pelexia sancta* (Rchb.f. & Warm.) Garay
sarcoglossa Rich. & Gal. = *Galeottiella sarcoglossa* (Rich. & Gal.) Schltr.
Sauroglossum Nichols = *Sauroglossum elatum* Lindl.
Sawyeri Standl. & L.O.Wms. = *Kionophyton Sawyeri* (Standl. & L.O.Wms.) Garay
sceptrodes Rchb.f. = *Sarcoglottis sceptrodes* (Rchb.f.) Schltr.
Schaffneri Rchb.f. = *Pelexia Schaffneri* (Rchb.f.) Schltr.
Schwackei Cogn. = *Sarcoglottis Schwackei* (Cogn.) Schltr.
scopulariae Rchb.f. = *Discyphus scopulariae* (Rchb.f.) Schltr.
sellilabris Griseb. = *Sauroglossum sellilabre* (Griseb.) Schltr.
seminuda Schltr. = *Kionophyton seminuda* (Schltr.) Garay
sibirica Raf. = *Spiranthes aestivalis* (Poir.) L.C.Rich.
simplex Gray 1867 = *Spiranthes tuberosa* Raf.
simplex Griseb. 1864 = *Sarcoglottis simplex* (Griseb.) Schltr.
sincorensis Schltr. = *Sarcoglottis sincorensis* (Schltr.) Schltr.
sinensis (Pers.) Ames
Smallii Schltr. = *Spiranthes ovalis* Lindl.
Smithii Rchb.f. = *Pelexia Smithii* (Rchb.f.) Garay
sparsiflora C. Schweinf. = *Physogyne sparsiflora* (C. Schweinf.) Garay
speciosa (Presl) Lindl. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.
speciosa (Jacq.) A.Rich. = *Stenorrhynchos speciosum* (Jacq.) L.C.Rich. ex Spreng.
spiralis (L.) Chevall.
spiralis (Lour.) Makino = *Spiranthes sinensis* (Pers.) Ames
spiranthoides (Schltr.) Garay & Dunsterv. = *Beadlea peruviana* (Presl) Garay
spirata Hoehne = *Lyroglossa spirata* (Hoehne) Garay
squamulosa (H.B.K.) Leon = *Sacoila squamulosa* (H.B.K.) Garay
StahlII Cogn. = *Mesadenus StahlII* (Cogn.) Garay
Standleyi (Ames) L.O.Wms. = *Coccineorchis Standleyi* (Ames) Garay
X Steigeri Correll
stenorrhynchoides (Griseb.) Leon = *Pelexia adnata* (Sw.) Spreng.
stolonifera Ames & Correll = *Funckiella stolonifera* (Ames & Correll) Garay
Storeri Chapm. = *Beadlea cranichoides* (Griseb.) Small
strateumatica (L.) Lindl. = *Zeuxine strateumatica* (L.) Schltr.
stricta (Rydb.) A. Nels. = *Spiranthes Romanzoffiana* Cham.
stricta (Rydb.) Wilm. = *Spiranthes Romanzoffiana* Cham.
stylites Lindl.
subfiliformis Cogn. = *Brachystele subfiliformis* (Cogn.) Schltr.
subpandurata A. & S. = *Beloglottis subpandurata* (A. & S.) Garay
subumbellata C. Schweinf. = *Sauroglossum corymbosum* (Lindl.) Garay
suishanensis (Hayata) Schltr.
sulphurea (Llave & Lex.) Hemsl. = *Stenorrhynchos michuacatum* (Llave & Lex.) Lindl.

Swartzii Krause = *Spiranthes torta* (Thunb.) Garay & Sweet
 tenella L.O.Wms. = *Deiregyne tenella* (L.O.Wms.) Garay
 tenuiflora Greenm. = *Aulosepalum tenuiflorum* (Greenm.) Garay
tenuis Lindl.
 tenuis (Lindl.) Benth. ex Fawc. = *Hapalorchis lineatus* (Lindl.) Schltr.
 tenuissima L.O.Wms. = *Mesadenus tenuissimus* (L.O.Wms.) Garay
 Thelymitra Rchb.f. = *Gularis trilineata* (Lindl.) Garay
 Tonduzii Schltr. = *Mesadenella Tonduzii* (Schltr.) Pabst & Garay
torta (Thunb.) Garay & Sweet
 tortilis (Sw.) L.C.Rich. = *Spiranthes torta* (Thunb.) Garay & Sweet
 tortilis Beck = *Spiranthes lacera* (Raf.) Raf.
 tortilis Chapm. = *Spiranthes praecox* (Walt.) Wats.
 tortilis Darlington = *Spiranthes vernalis* Engelm. & Gray
 tortilis Torr. = *Spiranthes vernalis* Engelm. & Gray
 towarensis Garay & Dunsterv. = *Pelexia towarensis* (Garay & Dunsterv.)
 Garay & Dunsterv.
 trachyglossa Krzl. = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.
 transversalis Rich. & Gal. = *Schiedeella Llaveana* (Lindl.) Schltr.
 trilineata Lindl. = *Gularia trilineata* (Lindl.) Garay
 trilineata var. crenulata L.O.Wms. = *Gularia crenulata* (L.O.Wms.) Garay
 triloba (Small) Schumann = *Spiranthes odorata* (Nutt.) Lindl.
 truncata Lindl. = *Beadlea truncata* (Lindl.) Garay
tuberosa Raf.
 Tuerckheimii Schltr. = *Schiedeella Llaveana* (Lindl.) Schltr.
 Ulai Cogn. = *Brachystele Ulai* (Cogn.) Schltr.
 uliginosa Barb.Rodr. = *Sarcoglottis uliginosa* Barb.Rodr.
 umbraticola L.O.Wms. = *Mesadenella petenensis* (L.O.Wms.) Garay
 umbrossa Barb.Rodr. = *Sarcoglottis umbrosa* (Barb.Rodr.) Schltr.
 unalascensis Spreng. = *Piperia unalascensis* (Spreng.) Rydb.
 vaginata (H.B.K.) Lindl. ex Jackson = *Stenorrhynchos vaginatum* (H.B.K.)
 Spreng.
 Valerioi A. & S. = *Schiedeella parasitica* (Rich. & Gal.) Schltr.
 valida (Ames) L.O.Wms. = *Pelexia Smithii* (Rchb.f.) Garay
 variegata (Barb.Rodr.) Cogn. = *Beadlea variegata* (Barb.Rodr.) Garay
 variegata Krzl. = *Beadlea olivacea* (Rolfe) Garay
 velata Robins. & Fern. = *Deiregyne velata* (Robins. & Fern.) Garay
vernalis Engelm. & Gray
 villosa Poepp. & Endl. = *Sarcoglottis villosa* (Poepp. & Endl.) Schltr.
 violacea Rich. & Gal. = *Schiedeella violacea* (Rich. & Gal.) Garay
 viridiflora (Makino) Makino = *Spiranthes sinensis* (Pers.) Ames
 Warmingii Rchb.f. = *Beadlea Warmingii* (Rchb.f.) Garay
 Weberbaueri Krzl. = *Pelexia Weberbaueri* (Krzl.) Schltr.
 Weirii Rchb.f. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
 Wendlandiana (Krzl.) Garay = *Pelexia olivacea* Rolfe
 Wercklei Schltr. = *Schiedeella Wercklei* (Schltr.) Garay
Wightiana Lindl.
 Woodsonii L.O.Wms. = *Sarcoglottis Woodsonii* (L.O.Wms.) Garay
 Wrightii Ames 1922 = *Schiedeella Amesiana* Garay

Wrightii (Rchb.f.) Schltr. 1913 = *Pseudogoodyera Wrightii* (Rchb.f.) Schltr.
yungasensis Rolfe = *Pelexia yungasensis* (Rolfe) Schltr.

X **Zahlbruckneri** Fleischm.

Stalkya Garay, gen nov.

Etymology: In honor of Galfrid Clement Keyworth Dunster-ville (1905–), friend and colleague, formerly a British career businessman, but also an avid student of Venezuelan orchids, who by his friends and orchidophiles alike is affectionately called “Stalky”, a name coined by his former classmates in college.

Sepala similia, parallela, conniventia, libera; sepalo postico concavo; sepalis lateralibus paululo obliquis. Petala sepalo postico agglutinata, apice libera, basi truncata. Labellum sessile, carnosum, margine supra basin utrinque lateris columnae agglutinatum, apice recurvum. Columna erecta, cylindrica, facie puberula, basi in pedem brevem, obliquum producta; stigmata 2, confluentia, biloba; rostellum anguste triangulare, acuminatum. Anthera umbonata, acuta; pollinia clavata, viscidio parvulo, subrotundo. Ovarium cylindricum, sessile, leviter tortum.

Planta muscicola, tubera ellipsoidea, pubescenti; foliis hysteranthiis, basilaribus, petiolatis; scapo erecto, gracili, plurivaginato, supra laxe paucifloro; floribus parvulis.

Sepals similar, parallel, connivent, free to base; dorsal sepal concave; lateral sepals somewhat oblique at base, but not didymous. Petals agglutinate with dorsal sepal, free at apex, with truncate, non-decurrent base. Lip sessile, fleshy, concave, lateral margins agglutinate with sides of column, recurved at apex. Column erect, cylindric, with a puberulent front, basally produced in a short oblique foot on top of ovary; stigmata 2, confluent, bilobed; rostellum narrowly triangular, acuminate with sinuous sides. Anther umbonate, acute; pollinia clavate with a small, subrotund viscidium. Ovary cylindric, sessile, slightly twisted.

Plants growing among mosses on tree trunks with a single ellipsoid, pubescent tuber at base. Leaves hysteranthous, basal,

petiolate. Scape erect, slender, several-sheathed, terminated by a loosely few-flowered spike. Flowers small.

TYPE: *Spiranthes muscicola* Garay & Dunsterv.

One species native to the high Andes of Venezuela.

Index to species.

Stalkya muscicola (Garay & Dunsterv.) Garay, comb. nov.

Basionym: *Spiranthes muscicola* Garay & Dunsterv., Venez. Orch. Ill. 4: 280, 1966.

Stenoptera Presl

actinosophila (Barb.Rodr.) Cogn. = *Eurystyles actinosophila* (Barb.Rodr.) Schltr.

ananassocomos Rehb.f. = *Eurystyles ananassocomos* (Rehb.f.) Schltr.

Guentherana Krzl. = *Eurystyles Guentherana* (Krzl.) Garay

Lorenzii Cogn. = *Eurystyles Lorenzii* (Cogn.) Schltr.

Roehlii Schnee = *Eurystyles Cotyledon* Wawra

Stenorrhynchos L.C.Rich. ex Spreng., Syst. Veg. 3: 677, 1826.

Etymology: *Stenos* = narrow and *rhynchos* = snout, in reference to the slender rostellum.

Sepals similar, free, parallel, rather tightly connivent, with flaring apices; dorsal sepal concave, free from column; lateral sepals oblique, slightly gibbose at base, but not decurrent. Petals agglutinate with dorsal sepal, without free apices, at most slightly oblique at base. Lip sessile at conduplicate, to gibbose base with the margins callose-thickened; blade conduplicate, arcuate with recurved apex; lateral margins agglutinate with sides of column. Column short, stout, with a distinct oblique base on top of the ovary; stigmata 2, approximate to confluent; rostellum rigid, linear-lanceolate to almost acicular, sharp-pointed. Anther narrowly ovate-lanceolate, cordate at base, acute above; pollinia linear-clavate with rather long, linear-lanceolate viscidium. Ovary obliquely clavate to obovate, sessile, somewhat twisted.

Terrestrial, erect, often robust plants. Roots fleshy, fasciculate, tuberous, commonly stipitate. Leaves commonly synanthous, rarely hysteranthous, usually basal, occasionally cauline

with cuneate bases. Stem erect, prominently vaginate, terminated by a many-flowered spike. Flowers large, showy.

LECTOTYPE: *Neottia speciosa* Jacq. [Britton & Millsp., Bahama Fl. 86, 1920]

Nine species native to the American tropics.

Index to species.

- acianthiforme (Rchb.f. & Warm.) Cogn. = *Nothostele acianthiformis* (Rchb.f. & Warm.) Garay
actinosophilum Barb.Rodr. = *Eurystyles actinosophila* (Barb.Rodr.) Schltr.
albescens Barb.Rodr. = *Pteroglossa macrantha* (Rchb.f.) Schltr.
albicans Cogn. = *Pelexia albicans* (Cogn.) Schltr.
apetalum Krzl. = *Sacoila apetala* (Krzl.) Garay
aphyllum (Hook.) Lindl. = *Sacoila lanceolata* (Aubl.) Garay
Arechavaletanii Barb.Rodr. = *Skeptrostachys Arechavaletanii* (Barb.Rodr.) Garay
argenteum Griseb. Sphalm. = *Sacoila argentina* (Griseb.) Garay
argentinum Griseb. = *Sacoila argentina* (Griseb.) Garay
Arrabidae Rchb.f. = *Pelexia Arrabidae* (Rchb.f.) Garay
aurantiacum (Llave & Lex.) Lindl.
australe Lindl. = *Sacoila lanceolata* (Aubl.) Garay
balanophorostachyum (Rchb.f. & Warm.) Cogn. = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
Berroanum Krzl. = *Skeptrostachys Berroana* (Krzl.) Garay
bicolor (Griseb.) Schltr. = *Lyroglossa Grisebachii* (Cogn.) Schltr.
bonariense (Lindl.) Braid 1924 = *Pelexia bonariensis* (Lindl.) Schltr.
bonariense (Lindl.) Cogn. 1895 = *Pelexia bonariensis* (Lindl.) Schltr.
bracteosum A. & S. = *Coccineorchis bracteosa* (A. & S.) Garay
Bradei Schltr. = *Sacoila Duseniana* (Krzl.) Garay
calcaratum (Sw.) L.C.Rich. = *Eltroplectris calcarata* (Sw.) Garay & Sweet
calophyllum Porsch = *Pelexia novofriburgensis* (Rchb.f.) Garay
Canterae Barb.Rodr. = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
Castillonii Haum. = *Odontorrhynchus Castillonii* (Haum.) Correa
ceracifolium Barb.Rodr. = *Lankesterella ceracifolia* (Barb.Rodr.) Mansf.
cerinum (Lindl.) Kl. = *Pelexia cerina* (Lindl.) Garay
cernuum Lindl. = *Coccineorchis cernua* (Lindl.) Garay
cinnabarinum (Llave & Lex.) Lindl. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
coccineum (Vell.) Hoehne = *Sacoila lanceolata* (Aubl.) Garay
Cogniauxii Krzl. = *Eurystyles Cogniauxii* (Krzl.) Schltr.
comosum Cogn. = *Pelexia comosa* (Cogn.) Schltr.
congestiflorum Cogn. = *Skeptrostachys congestiflora* (Cogn.) Garay
cuculliger (Rchb.f. & Warm.) Cogn. = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.

densum Haum. = *Skeptrostachys disoides* (Krzl.) Garay
 Duckeanum Barb.Rodr. ex Hoehne, Nomen = *Pelexia laxa* (Poepp. & Endl.) Lindl.
 Dusenianum Krzl. = *Sacoila Duseniana* (Krzl.) Garay
 Ekmanii Krzl. = *Pelexia Ekmanii* (Krzl.) Schltr.
 epiphytum Barb.Rodr. = *Lankesterella caespitosa* (Lindl.) Hoehne
 esmeralda (Linden & Rchb.f.) Cogn. = *Mesadenella cuspidata* (Lindl.) Garay
 euphlebiolum Oliver ex Rchb.f. = *Pteroglossa euphlebia* (Rchb.f.) Garay
 exaltatum Krzl. = *Skeptrostachys Arechavaletanii* (Barb.Rodr.) Garay
 flavum (Sw.) Spreng. = *Corymborkis flava* (Sw.) O. Ktze.
 foliosum Schltr. = *Sacoila foliosa* (Schltr.) Garay
 Galeottianum Schltr. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
 giganteum Cogn. = *Skeptrostachys gigantea* (Cogn.) Garay
 Glaziovii Cogn. = *Mesadenus Glaziovii* (Cogn.) Schltr.
 gnomus Krzl. = *Lankesterella gnoma* (Krzl.) Hoehne
 goninense Pulle = *Pelexia goninensis* (Pulle) Schltr.
 guatemalense Schltr. = *Sacoila lanceolata* (Aubl.) Garay
 Hassleri Cogn. = *Sacoila Hassleri* (Cogn.) Garay
 Hennisianum Sandt = *Beadlea Hennisiana* (Sandt) Garay
 Hilarianum Cogn. = *Pteroglossa Hillariana* (Cogn.) Garay
 holosericeum Krzl. = *Pelexia tamanduensis* (Krzl.) Schltr.
 hypnophilum Barb.Rodr. = *Pelexia novofriburgensis* (Rchb.f.) Garay
 hysteranthum Barb.Rodr. = *Pelexia hysterantha* (Barb.Rodr.) Schltr.
icmadophilum Barb.Rodr. = *incerta sedis*
 jaliscanum (Wats.) Nash = *Sacoila lanceolata* (Aubl.) Garay
 lanceolatum (Aubl.) L.C.Rich. ex Spreng. = *Sacoila lanceolata* (Aubl.) Garay
 lanuginosum (Rich. & Gal.) Schltr. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.
 lateritium Krzl. = *Skeptrostachys Arechavaletanii* (Barb.Rodr.) Garay
 latipetalum Cogn. = *Skeptrostachys latipetala* (Cogn.) Garay
 latisepalum Cogn. ex Schltr. = *Skeptrostachys latipetala* (Cogn.) Garay
 laxum Poepp. & Endl. = *Pelexia laxa* (Poepp. & Endl.) Lindl.
 Lindmanianum Krzl. = *Pelexia Lindmaniana* (Krzl.) Schltr.
 Loefgrenii Porsch = *Pelexia Loefgrenii* (Porsch) Schltr.
 longicollis Cogn. = *Lankesterella longicollis* (Cogn.) Hoehne
 longifolium Cogn. = *Pelexia longifolia* (Cogn.) Hoehne
 lupulinum Lindl. = *Stenorrhynchos aurantiacum* (Llave & Lex.) Lindl.
 Lutzii Pabst = *Cotylolabium Lutzii* (Pabst) Garay
 macranthum (Rchb.f.) Cogn. = *Pteroglossa macrantha* (Rchb.f.) Schltr.
 macropodium Barb.Rodr. = *Pelexia macropoda* (Barb.Rodr.) Schltr.
 madrense Rchb.f. = *Stenorrhynchos michuacanum* (Llave & Lex.) Lindl.
 mattogrossense Hoehne = *Pelexia cuculligera* (Rchb.f. & Warm.) Schltr.
michuacanum (Llave & Lex.) Lindl.
 Millei Schltr. = *Stenorrhynchos speciosum* (Jacq.) L.C.Rich. ex Spreng.
 minarum Krzl. = *Pelexia minarum* (Krzl.) Schltr.
 montanum Lindl. = *Dichromanthus cinnabarinus* (Llave & Lex.) Garay
 montevidense Barb.Rodr. = *Skeptrostachys montevidensis* (Barb.Rodr.) Garay

navarrense Ames = *Coccineorchis navarrensis* (Ames) Garay
 novofriburgense Rchb.f. = *Pelexia novofriburgensis* (Rchb.f.) Garay
nutans Kunth & Bouché
 oestrifer (Rchb.f. & Warm.) Cogn. = *Pelexia oestrifera* (Rchb.f. & Warm.) Schltr.
 orchioides (Sw.) L.C.Rich. = *Sacoila lanceolata* (Aubl.) Garay
 orobanchoides Krzl. = *Pelexia orobanchoides* (Krzl.) Schltr.
 pachystachyum Krzl. = *Skeptrostachys disoides* (Krzl.) Garay
papulosum (Llave & Lex.) Lindl. = *incerta sedis*
 paraguayense (Rchb.f.) Cogn. = *Skeptrostachys paraguayensis* (Rchb.f.) Garay
 paranahybae (Krzl.) Pabst = *Skeptrostachys paranahybae* (Krzl.) Garay
 parvulum Krzl. = *Lankesterella parvula* (Krzl.) Pabst
 parvum Cogn. = *Pelexia parva* (Cogn.) Schltr.
 pauciflorum Rchb.f. = *Funckella hyemalis* (Rich. & Gal.) Schltr.
 pedicellatum Cogn. = *Sacoila pedicellata* (Cogn.) Garay
 pilosum Cogn. = *Lankesterella pilosa* (Cogn.) Hoehne
 polyanthum Krzl. = *Skeptrostachys montevidensis* (Barb.Rodr.) Garay
 polystachyon (Sw.) Spreng. = *Tropidia polystachya* (Sw.) Ames
 pteryganthum Rchb.f. & Warm. = *Pelexia pterygantha* (Rchb.f. & Warm.) Schltr.
pubens (Rich. & Gal.) Schltr.
 regium Krzl. = *Pteroglossa regia* (Krzl.) Schltr.
 Lorenzii (Cogn.) Schltr. = *Eurystyles Lorenzii* (Cogn.) Schltr.
 paranaëse Schltr. = *Eurystyles paranaënsis* (Schltr.) Schltr.
 riograndense Krzl. = *Sacoila riograndensis* (Krzl.) Garay
 robustum Krzl. = *Pelexia robusta* (Krzl.) Schltr.
 rupestre (Lindl.) Cogn. = *Skeptrostachys rupestris* (Lindl.) Garay
 saltense (Griseb.) Cogn. = *Pelexia saltensis* (Griseb.) Schltr.
 Sancti-Antonii Krzl. = *Sacoila lanceolata* (Aubl.) Garay
 Sancti-Jacobi Krzl. = *Skeptrostachys Sancti-Jacobi* (Krzl.) Garay
 secundiflorum Lillo & Haum. = *Sacoila secundiflora* (Lillo & Haum.) Garay
 Sodiroi Schltr. = *Pelexia hirta* (Lindl.) Schltr.
speciosum (Jacq.) L.C.Rich. ex Spreng.
 squamulosum (H.B.K.) Spreng. = *Sacoila squamulosa* (H.B.K.) Garay
 Standleyi Ames = *Coccineorchis Standleyi* (Ames) Garay
 stenanthum Cogn. = *Pelexia stenantha* (Cogn.) Schltr.
 stenophyllum Cogn. = *Skeptrostachys balanophorostachya* (Rchb.f. & Warm.) Garay
 sulphureum (Llave & Lex.) Lindl. = *Stenorrhynchos michuacanam* (Llave & Lex.) Lindl.
 tamanduëse Krzl. = *Pelexia tamanduënsis* (Krzl.) Schltr.
 taquaremboëse Barb.Rodr. = *Beadlea taquaremboënsis* (Barb.Rodr.) Garay
 Tonduzii (Schltr.) Schltr. = *Mesadenella Tonduzii* (Schltr.) Pabst & Garay
 umbrosum Barb.Rodr. = *Sarcoglottis umbrosa* (Barb.Rodr.) Schltr.
 vaginatum Cogn. 1906 = *Pelexia paraguayensis* Garay
vaginatum (H.B.K.) Spreng. 1826
 ventricosum Cogn. = *Pelexia ventricosa* (Cogn.) Schltr.

venustum Barb.Rodr. = *Beadlea venusta* (Barb.Rodr.) Garay
viride Cogn. = *Pelexia viridis* (Cogn.) Schltr.

vulnerarium Rojas = *incerta sedis*

Weirii (Rchb.f.) Cogn. = *Pelexia laxa* (Poepp. & Endl.) Lindl.

Stigmatosema Garay, gen. nov.

Etymology: *Stigma* = mark and *sema* = sign, in reference to the large, flared rostellum.

Sepala subsimilia, subparallela, libera; sepalo postico concavo, sepalis lateralibus minore angustaque; sepalis lateralibus obliquis, mentum non formantibus. Petala sepalo postico agglutinata, apice libera, basi truncata. Labellum sessile, tenue, conduplicato-excavatum, basin versus obscure bicallosum, apice recurvum. Columna brevis, cylindrica, facie puberula, basi obliqua; stigmata 2, distincta; rostellum subquadrato-flabellatum, truncatum, in medio sulcatum, tenue. Anthera ovata, concava, obtusa; pollinia clavata, viscidio ovato, satis magno. Ovarium oblique fusiforme, sessile, paululo tortum.

Plantae terrestres, graciles; radicibus fasciculatis, tuberosis, stipitato-fusiformibus; foliis basilaribus, petiolatis; scapo gracili, suberecto, plurivaginato, apice laxe paucifloro; floribus parvulis, spicatis.

Sepals subsimilar, subparallel, free; dorsal sepal concave, smaller and narrower than the lateral sepals; lateral sepals oblique without forming a mentum. Petals agglutinate with dorsal sepal, free at apex and truncate at base. Lip sessile, thin, conduplicate-excavate, obscurely bicallose near base, the apex recurved. Column short, cylindric, with a puberulent front, oblique at base, not truly forming a distinct foot on top of ovary; stigmata 2, distinctly separate; rostellum subquadrate-flabellate, truncate, sulcate in middle, thin, pliable. Anther ovate, concave, obtuse; pollinia clavate with a rather large viscidium. Ovary obliquely fusiform, sessile, somewhat twisted.

Terrestrial, slender plants. Roots fasciculate, tuberous, stipitate-fusiform. Leaves basal, petiolate. Scape slender, suberect, several-sheathed, terminated by a loosely few-flowered spike. Flowers small.

TYPE: *Brachystele Hatschbachii* Pabst.

Two species native to Brazil, Paraguay and Argentina.

Index to species.

Stigmatosema Hatschbachii (Pabst) Garay, comb. nov.

Basionym: *Brachystele Hatschbachii* Pabst in *Bradea* 2: 80, 1976.

Stigmatosema polyaden (Vell.) Garay, comb. nov.

Basionym: *Serapias polyaden* Vell., *Fl. Flumin.* 9: t.56, 1831.

Synassa Lindl.

corymbosa Lindl. = *Sauroglossum corymbosum* (Lindl.) Garay

dilatata Lindl. ex Krzl. = *Sauroglossum corymbosum* (Lindl.) Garay

Synoplectris Raf.

picta (R. Br.) Raf. = *Sarcoglottis acaulis* (J.E.Sm.) Schltr.

viridis Raf. = *Sarcoglottis grandiflora* (Lindl.) Kl.

Thelyschista Garay, gen. nov.

Etymology: *Thelys* = female and *schistos* = split, divided, in reference to the nature of the cleft stigmata.

Sepala plus minusve similia, leviter divergentia, ringentia, usque ad basin libera; sepalo postico concavo; sepalis lateralibus obliquis, basi leviter dilatatis, mentum obscurum cum pede columnae formantibus. Petala margine interiore sepalo postico valde agglutinata, basi paululo obliqua. Labellum e cuneato-canaliculata basi conduplicatum, sessile, margine basin incrasatum, in medio columnae lateraliter agglutinatum. Columna satis crassa, basi in pedem brevem, obliquum producta; stigmata 2, patelliformia, bipartita, valde separata; rostellum anguste-triangulare, acuminatum, satis tenue. Anthera anguste-elliptica, obtusa; pollinia lineari-clavata, separata, viscidio oblanceolato-obovato, valde conspicuo affixa. Ovarium sessile, oblique fusiforme, leviter tortum.

Herbae terrestres, elatae; radicibus fasciculatis; foliis basilari-bus, rosulatis, basi cuneato-subpetiolatis; scapo erecto, vaginato, apice subdense spicato, sursum plus minusve cernuo; floribus satis magnis, suberectis.

Sepals more or less similar, somewhat divergent, ringent, completely free to base; dorsal sepal concave; lateral sepals oblique at the dilated base, with column-foot forming an obs-

cure mentum. Petals agglutinate with dorsal sepals, with an oblique base. Lip sessile, from a cuneate-canaliculate base con-
duplicate. The margins at base incrassate, in middle agglutinate
with sides of column. Column rather fleshy, heavy, basally pro-
duced in a short, oblique foot; stigmata 2, situated on a deeply
cleft, biparted, well-separated, more or less cartilaginous plate;
rostellum narrowly triangular, acuminate, pliable. Anther nar-
rowly elliptic, obtuse; pollinia linear-clavate, separate, with a
large, conspicuous, oblanceolate-obovate viscidium. Ovary ses-
sile, obliquely fusiform, somewhat twisted.

Terrestrial, tall plants. Roots fasciculate, fleshy. Leaves basal,
rosulate, with cuneate-subpetiolate bases. Scape erect, vaginate,
terminated by a subdensely many-flowered spike which is more
or less cernuous at apex. Flowers rather large, suberect.

TYPE: *Odontorrhynchus Ghillanyi* Pabst

One species, so far known only from Brazil.

Index to species

Thelyschista Ghillanyi (Pabst) Garay, comb. nov.

Basionym: *Odontorrhynchus Ghillanyi* Pabst in *Bradea* 2: 166, 1977.

Trachelosiphon Schltr.

actinosophila (Barb.Rodr.) Schltr. = *Eurystyles actinosophila* (Barb.Rodr.)
Schltr.

ananassocomos (Rchb.f.) Schltr. = *Eurystyles ananassocomos* (Rchb.f.)
Schltr.

Cogniauxii (Krzl.) Schltr. = *Eurystyles Cogniauxii* (Krzl.) Schltr.

colombianum Schltr. = *Eurystyles colombiana* (Schltr.) Schltr.

cristatum Schltr. = *Eurystyles cristata* (Schltr.) Schltr.

Lorenzii (Cogn.) Schltr. = *Eurystyles Lorenzii* (Cogn.) Schltr.

paranaense Schltr. = *Eurystyles paranaënsis* (Schltr.) Schltr.

Triorchis Petiver ex Nieuwl.

Beckii (Lindl.) House = *Spiranthes lacera* (Raf.) Raf.

cernua (L.) Nieuwl. = *Spiranthes cernua* (L.) L.C.Rich.

gracilis (Bigel.) Nieuwl. = *Spiranthes lacera* (Raf.) Raf.

Grayi (Ames) Nieuwl. = *Spiranthes tuberosa* Raf.

laciniata (Small) House = *Spiranthes laciniata* (Small) Ames

linearis (Rydb.) Nieuwl. = *Spiranthes vernalis* Engelm. & Gray

longilabris (Lindl.) House = *Spiranthes longilabris* Lindl.

ochroleuca (Rydb.) Nieuwl. = *Spiranthes ochroleuca* (Rydb.) Rydb.

odorata (Nutt.) Nieuwl. = *Spiranthes odorata* (Nutt.) Lindl.

ovalis (Lindl.) House = *Spiranthes ovalis* Lindl.
ovalis (Lindl.) Nieuwl. = *Spiranthes ovalis* Lindl.
plantaginea (Raf.) Nieuwl. = *Spiranthes lucida* (H.H.Eaton) Ames
praecox (Walt.) Nieuwl. = *Spiranthes praecox* (Walt.) Wats.
Romanzoffiana (Cham.) Nieuwl. = *Spiranthes Romanzoffiana* Cham.
spiralis (Sw.) House = *Spiranthes torta* (Thunb.) Garay & Sweet
stricta (Rydb.) Lunell = *Spiranthes Romanzoffiana* Cham.
stricta (Rydb.) Nieuwl. = *Spiranthes Romanzoffiana* Cham.
triloba (Small) House = *Spiranthes odorata* (Nutt.) Lindl.
vernalis (Engelm. & Gray) House = *Spiranthes vernalis* Engelm. & Gray
xyridifolia (Small) House = *Spiranthes vernalis* Engelm. & Gray

Tussacia Raf. ex Desv., not *Tussaca* Raf.

aestivalis (Poir.) Desv. = *Spiranthes aestivalis* (Poir.) L.C.Rich.

autumnalis (Balb.) Desv. = *Spiranthes spiralis* (L.) Chevall.

PLATE 10

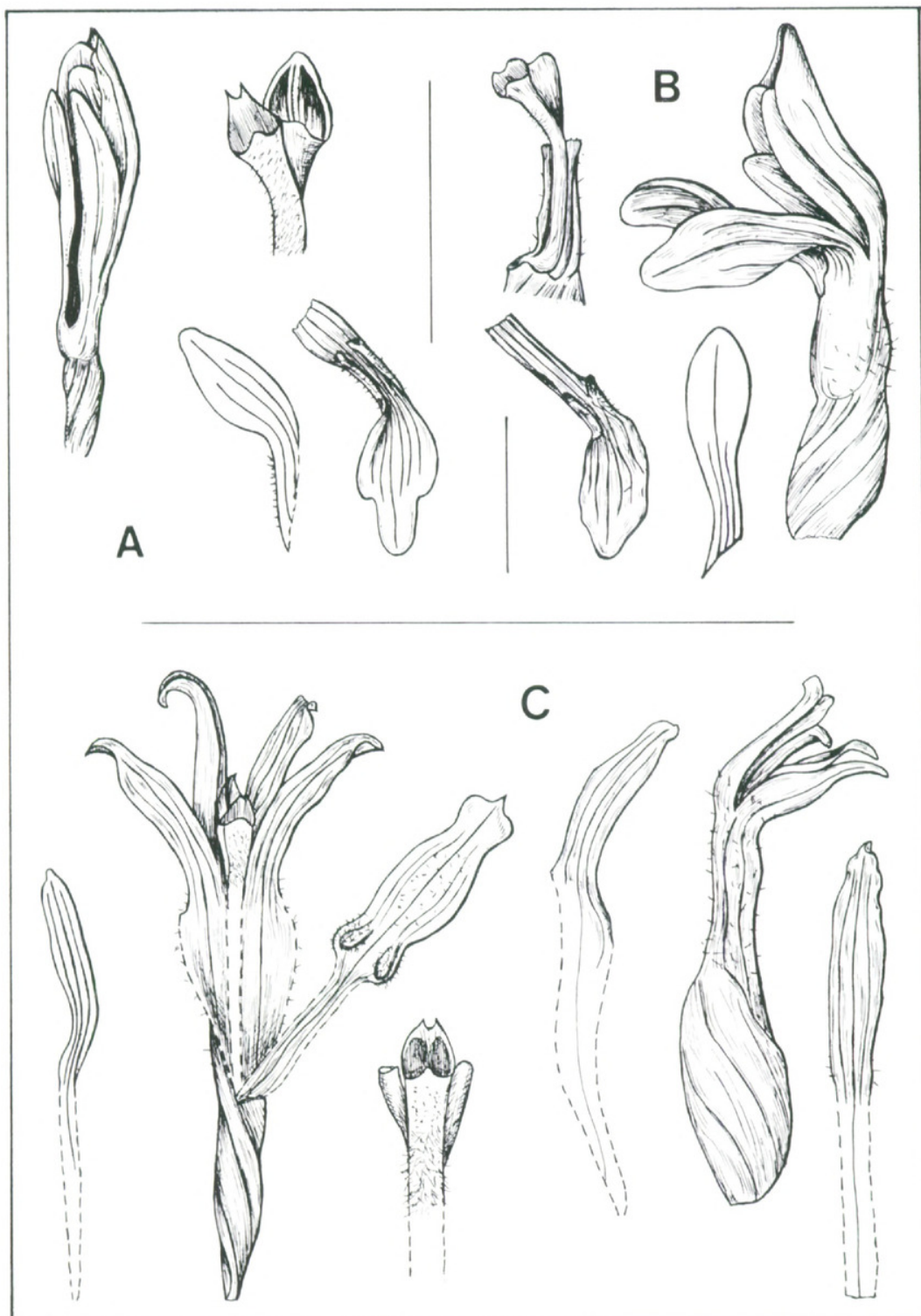


Plate 10.

- A. *Aulosepalum hemichrea* (Lindl.) Garay. Type.
- B. *Aulosepalum ramentaceum* (Lindl.) Garay. Type.
- C. *Aulosepalum tenuiflorum* (Greenm.) Garay. Type.

PLATE 11



Plate 11.
Beadlea cranichoides (Griseb.) Small.

PLATE 12

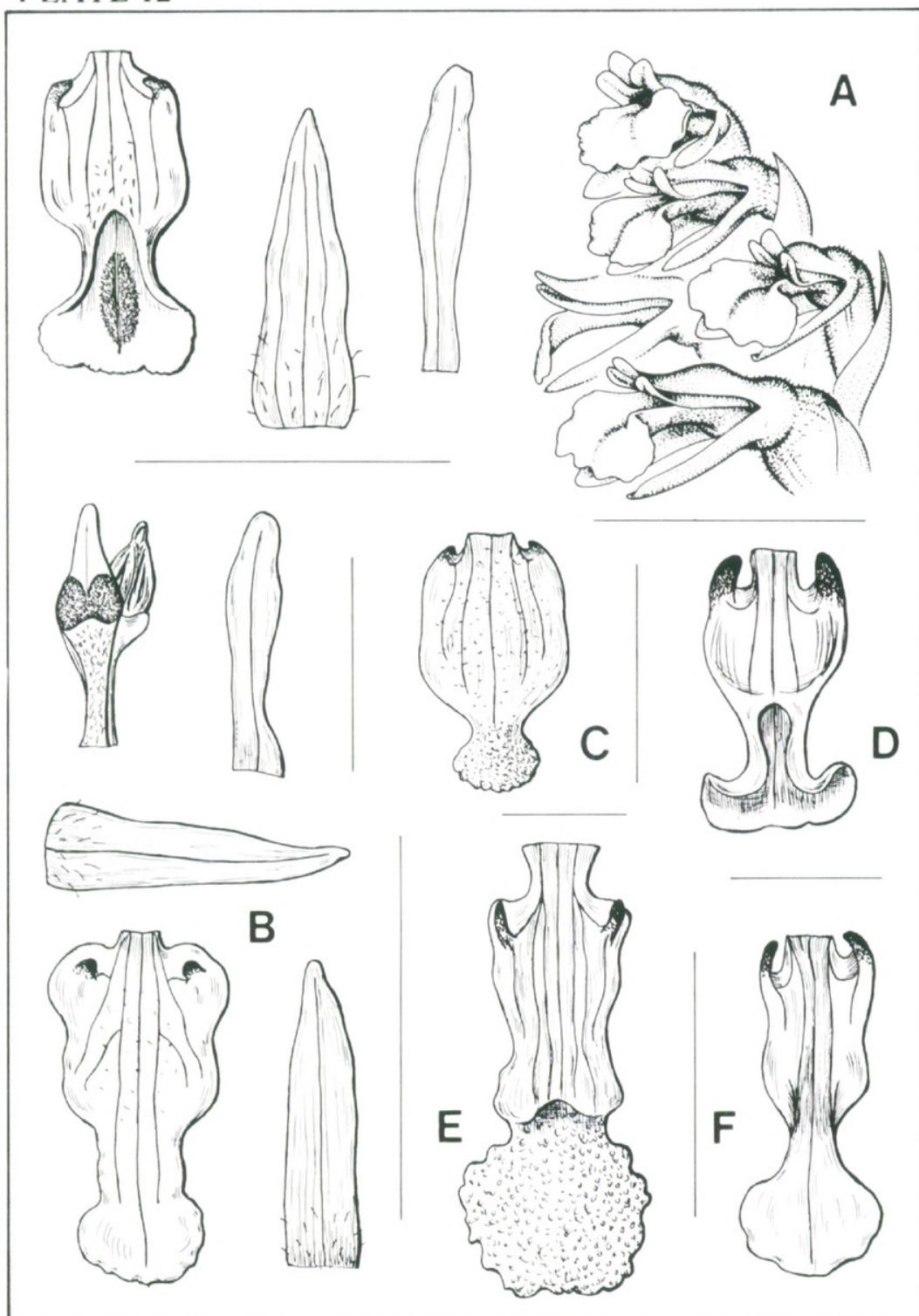


Plate 12.

- A. *Beadlea peruviana* (Presl) Garay. Type.
- B. *Beadlea elata* (Sw.) Small. (Type of *Neottia minor* Jacq.)
- C. *Beadlea aprica* (Lindl.) Garay. Type.
- D. *Beadlea saccata* (Rich. & Gal.) Garay.
- E. *Beadlea organensis* Pabst. Type.
- F. *Beadlea Prasophyllum* (Rchb.f.) Hamer & Garay. Type.

PLATE 13

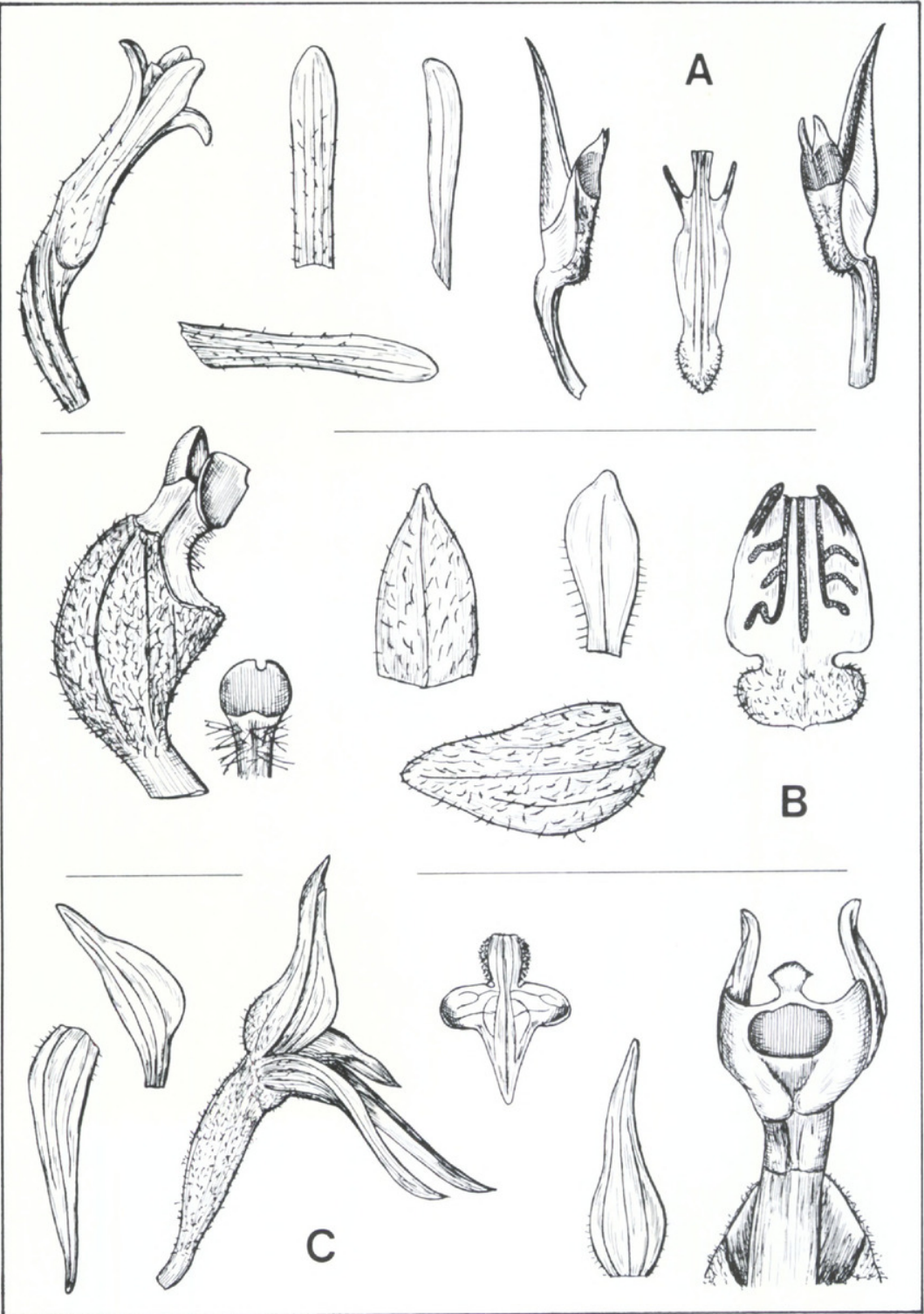


Plate 13.
 A. *Beloglottis costaricensis* (Rehb.f) Schltr.
 B. *Brachystele bracteosa* (Lindl.) Schltr. Type.
 C. *Buchtienia boliviensis* Schltr. Type.

PLATE 14

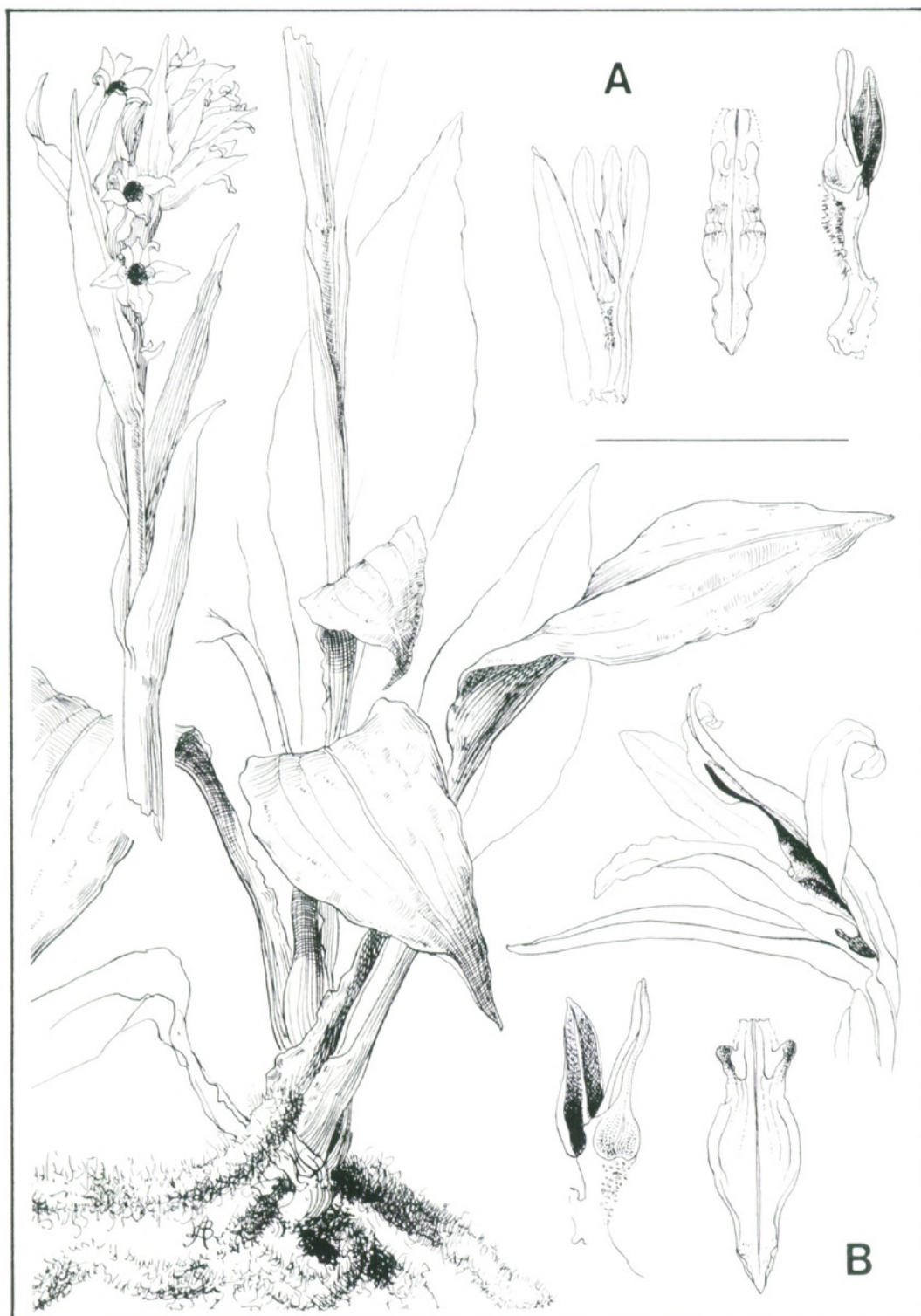


Plate. 14.

A. *Coccineorchis navarrensis* (Ames) Garay. Type.

B. *Coccineorchis Standleyi* (Ames) Garay. Type.

PLATE 15

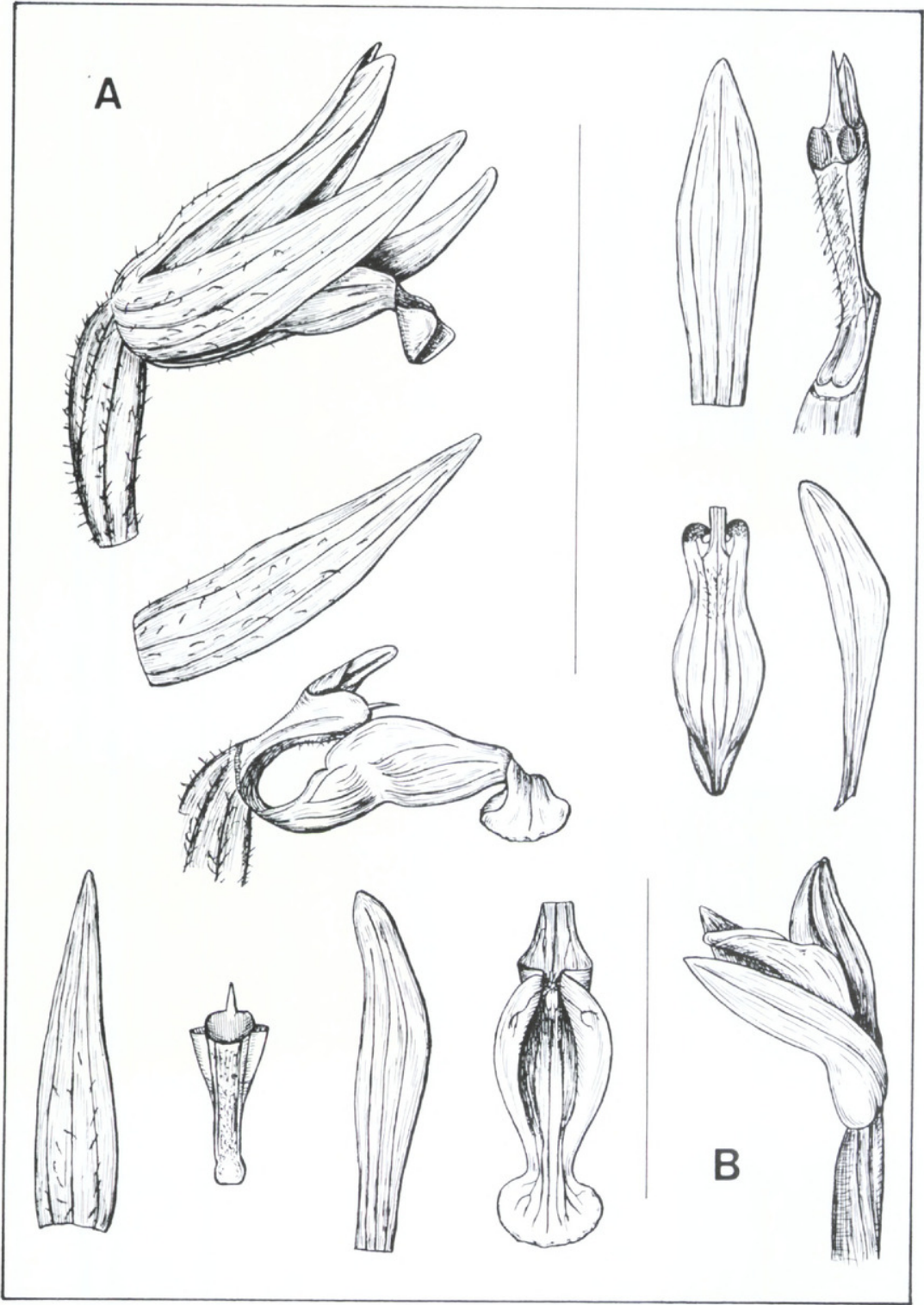


Plate 15.
A. *Cotylolabium Lutzii* (Pabst) Garay. Type.
B. *Coccineorchis cernua* (Lindl.) Garay. Type.

PLATE 16

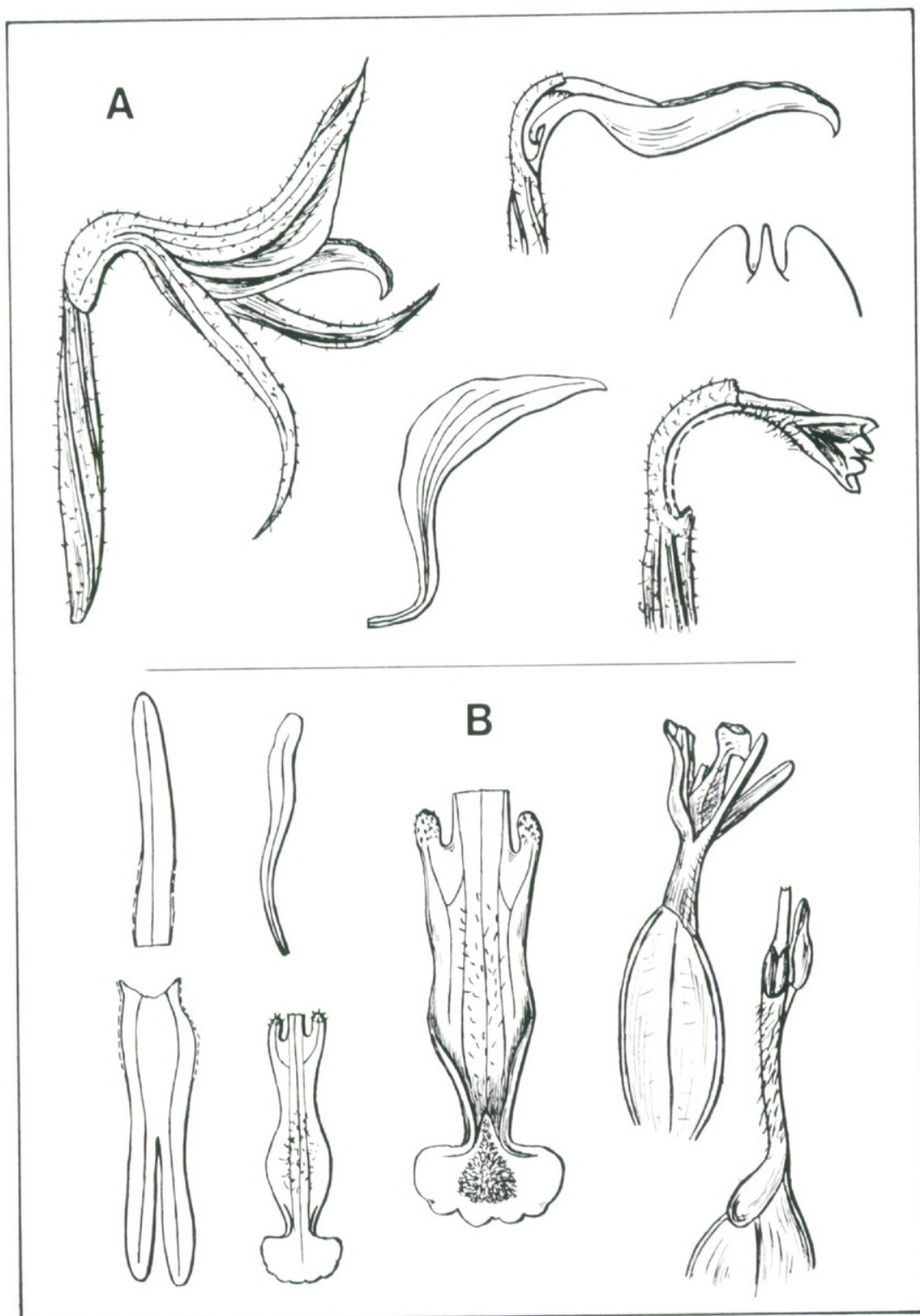


Plate 16.

A. *Cybebus grandis* Garay. Type.

B. *Cyclopogon ovalifolium* Presl. Type.

PLATE 17

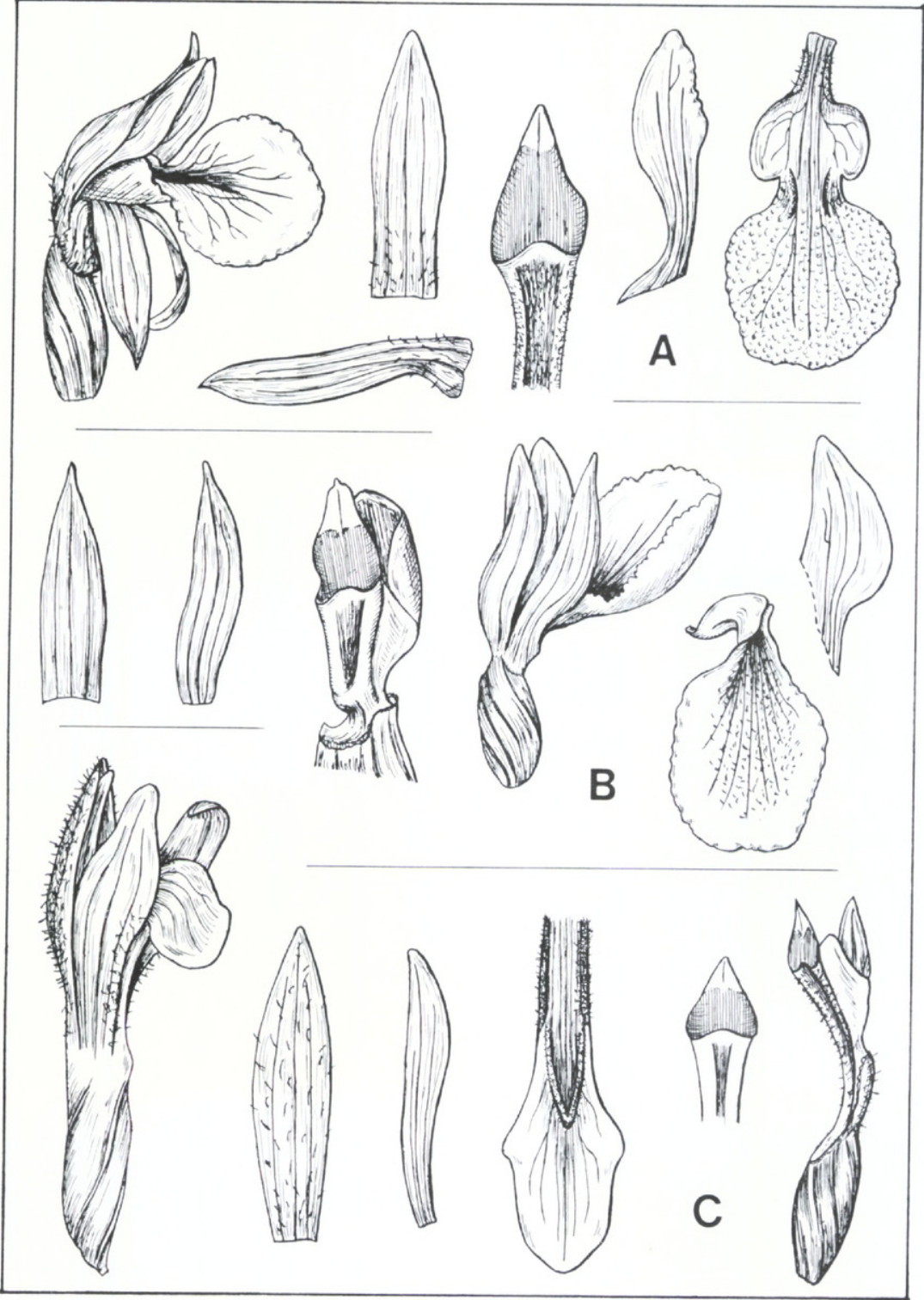


Plate 17.
A. *Deiregyne chartacea* (L.O.Wms.) Garay. Type.
B. *Deiregyne velata* (Robins. & Fern.) Garay. Type.
C. *Deiregyne diaphana* (Lindl.) Garay. Type.

PLATE 18

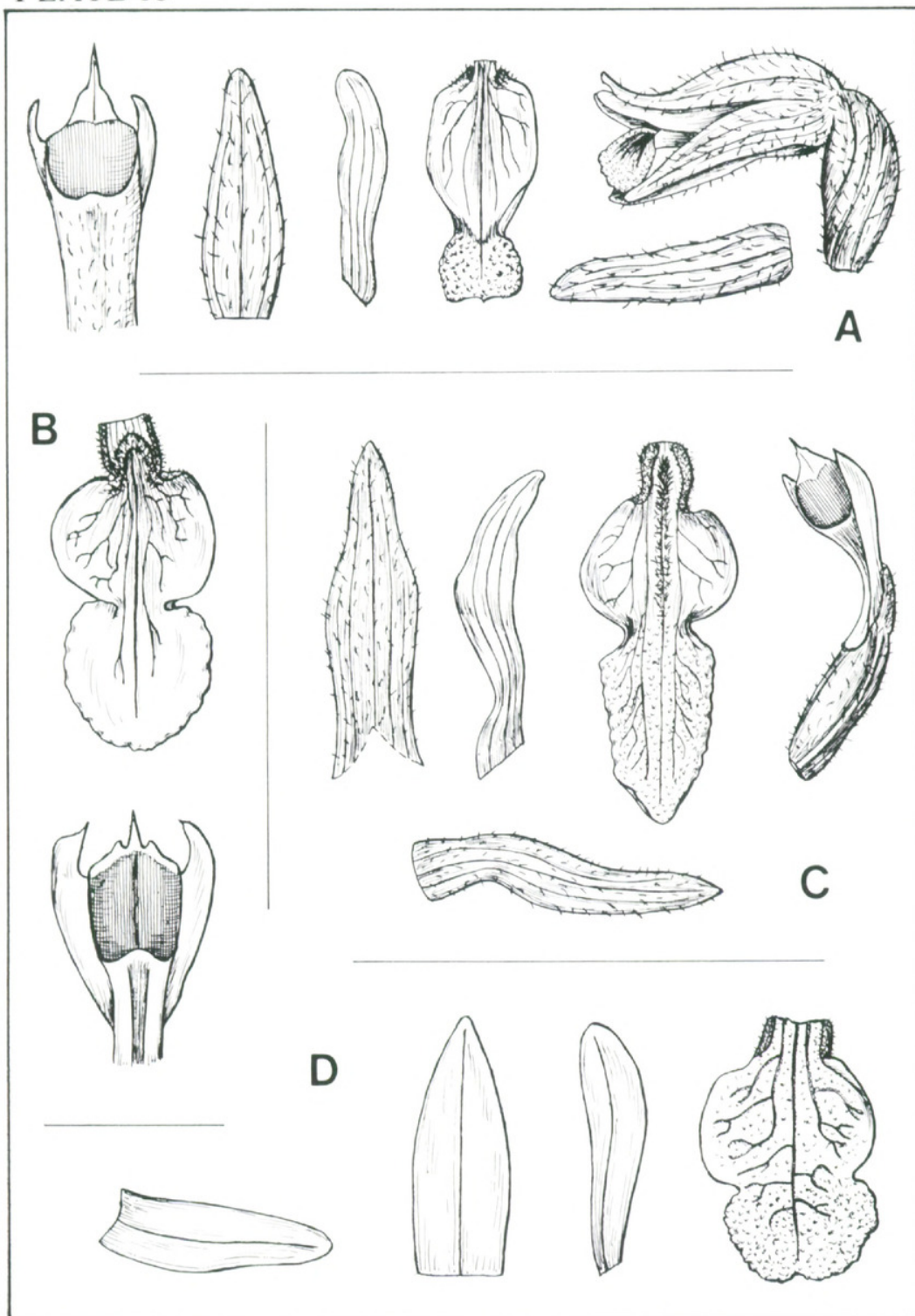


Plate 18.

- A. *Deiregyne albovaginata* (C. Schweinf.) Garay. Type.
- B. *Deiregyne durangensis* (A. & S.) Garay. (Type of *Spiranthes saltensis* Ames)
- C. *Deiregyne confusa* Garay. Type.
- D. *Deiregyne dendroneura* (Sheviak & Bye) Garay. Type.

PLATE 19

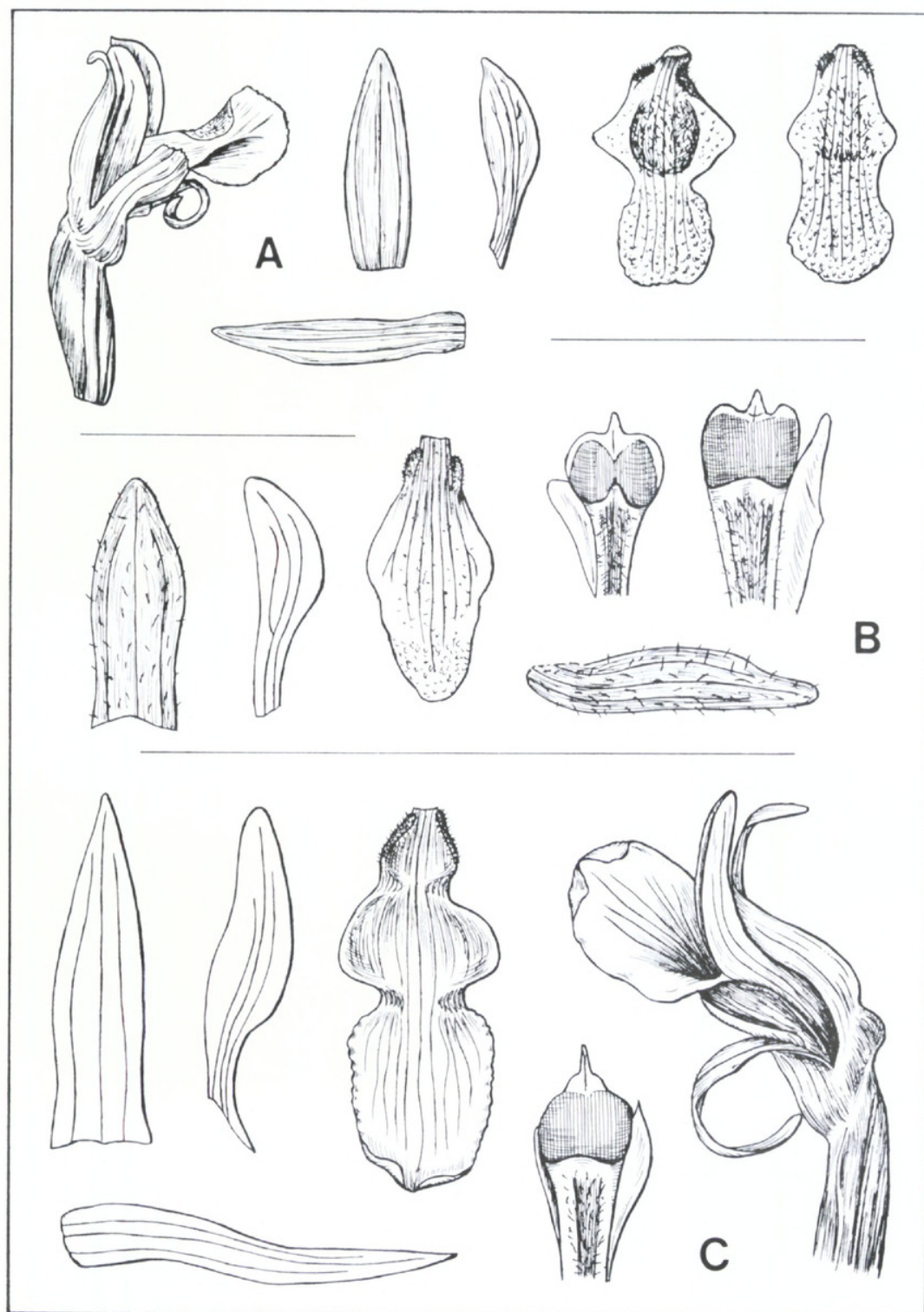


Plate 19.

- A. *Deiregyne falcata* (L.O.Wms.) Garay. Type.
- B. *Deiregyne rhombilabia* Garay. Type.
- B. *Deiregyne oblecta* (C. Schweinf.) Garay. Type.

PLATE 20

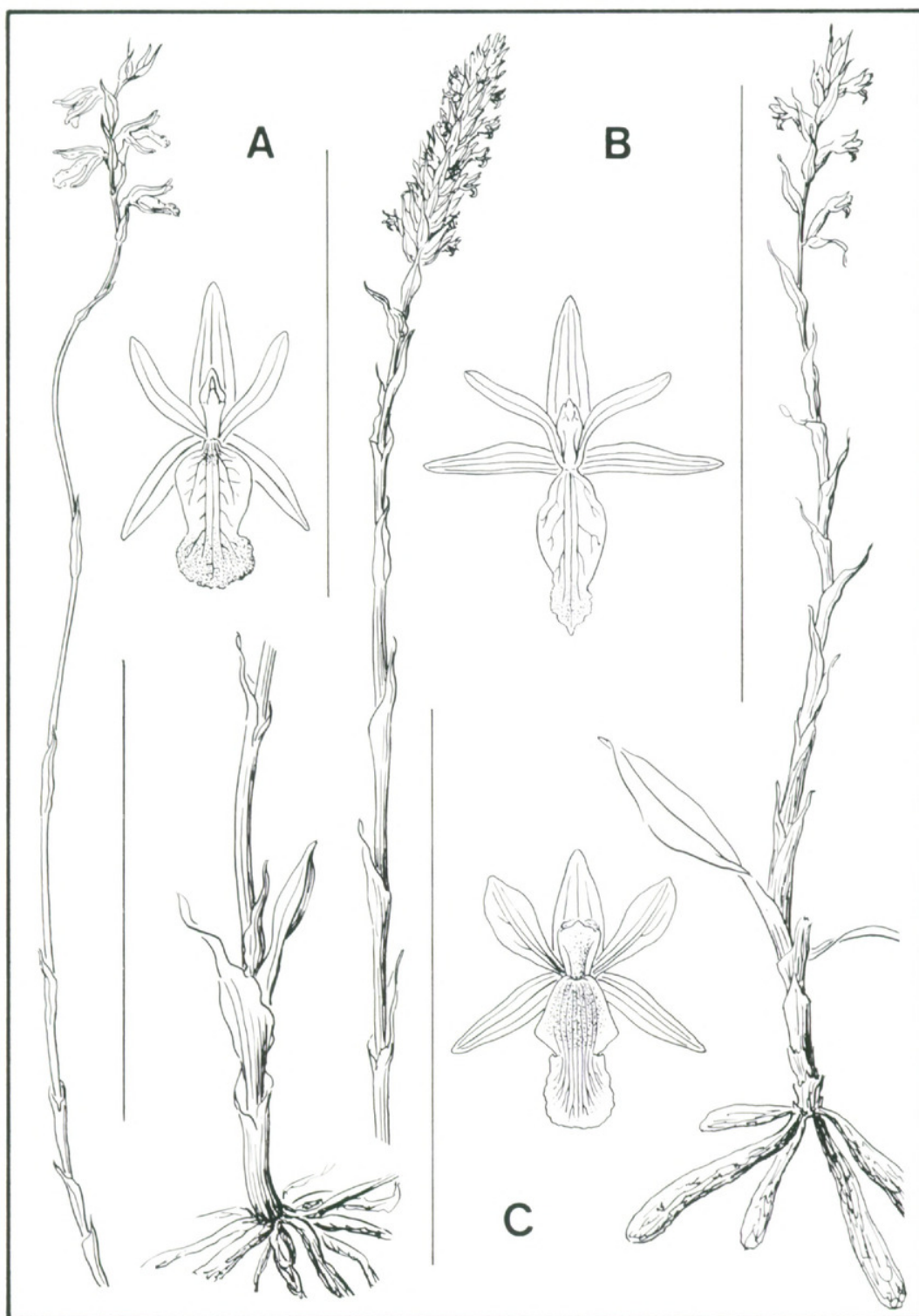


Plate 20.

- A. *Deiregyne tenella* (L.O.Wms.) Garay. Type.
- B. *Deiregyne pseudopyramidalis* (L.O.Wms.) Garay. Type.
- C. *Deiregyne falcata* (L.O.Wms.) Garay. Type.

PLATE 21

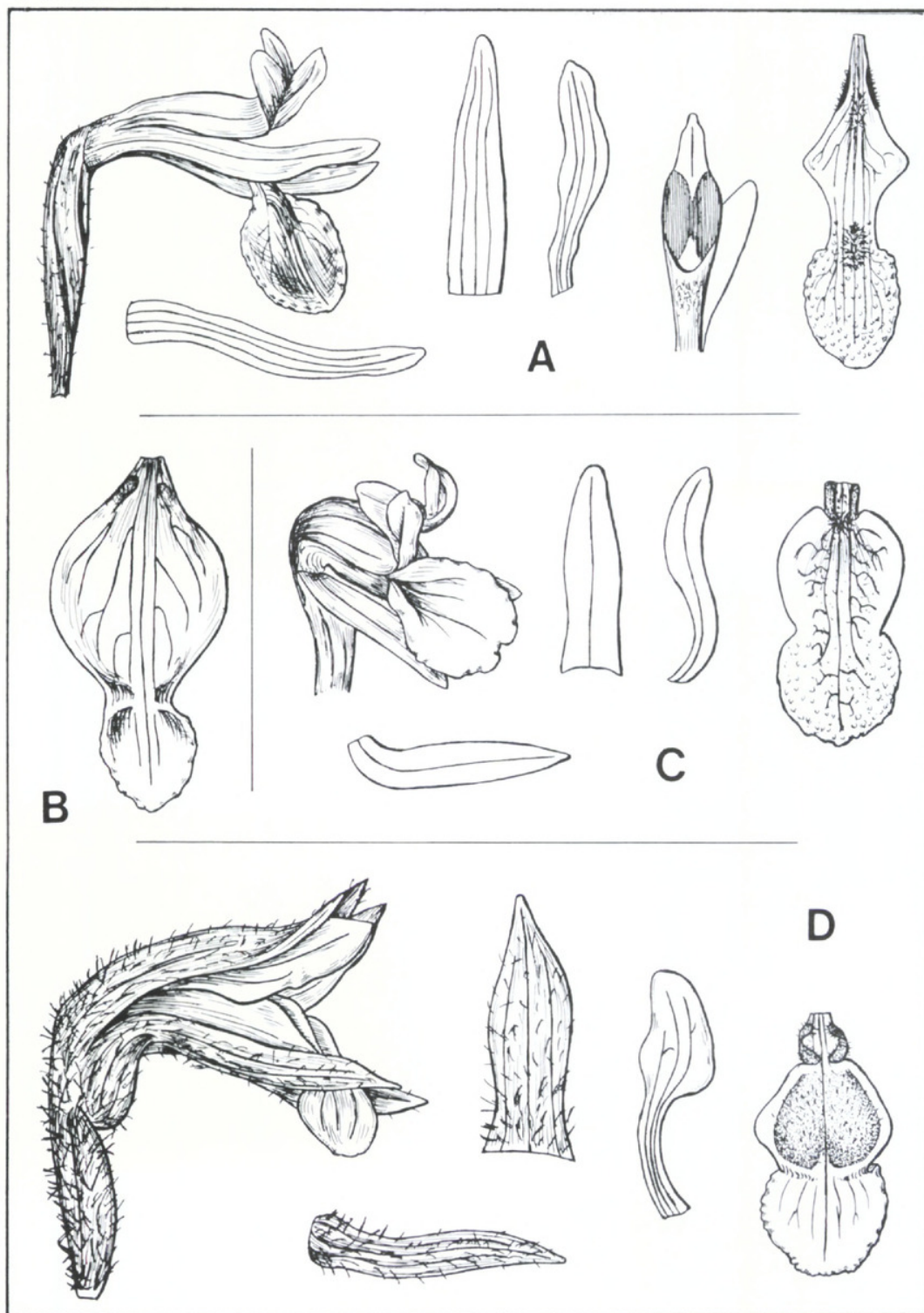


Plate 21.

- A. *Deiregyne pandurata* Garay. Type.
- B. *Deiregyne pseudopyramidalis* (L.O.Wms.) Garay. Type.
- C. *Deiregyne tenella* (L.O.Wms.) Garay. Type.
- D. *Deiregyne eriophora* (Robins. & Greenm.) Garay. Type.

PLATE 22



Plate 22.

Dichromanthus cinnabarinus (Llave & Lex.) Garay.

PLATE 23

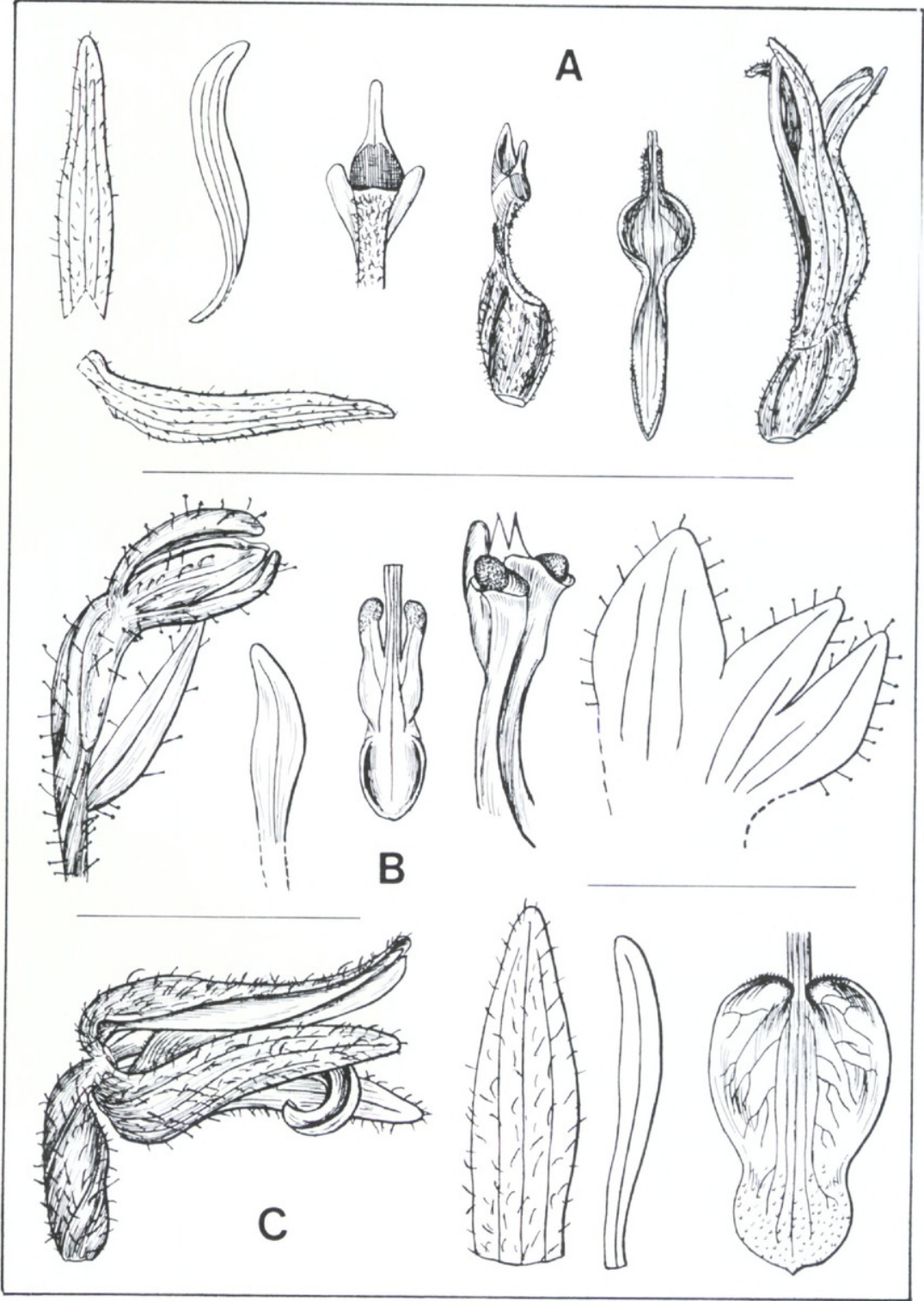


Plate 23.
A. *Dichromanthus cinnabarinus* (Llave & Lex.) Garay.
B. *Discyphus scopulariae* (Rehb.f.) Schltr.
C. *Dithyridanthus densiflorus* (C. Schweinf.) Garay. Type.

PLATE 24

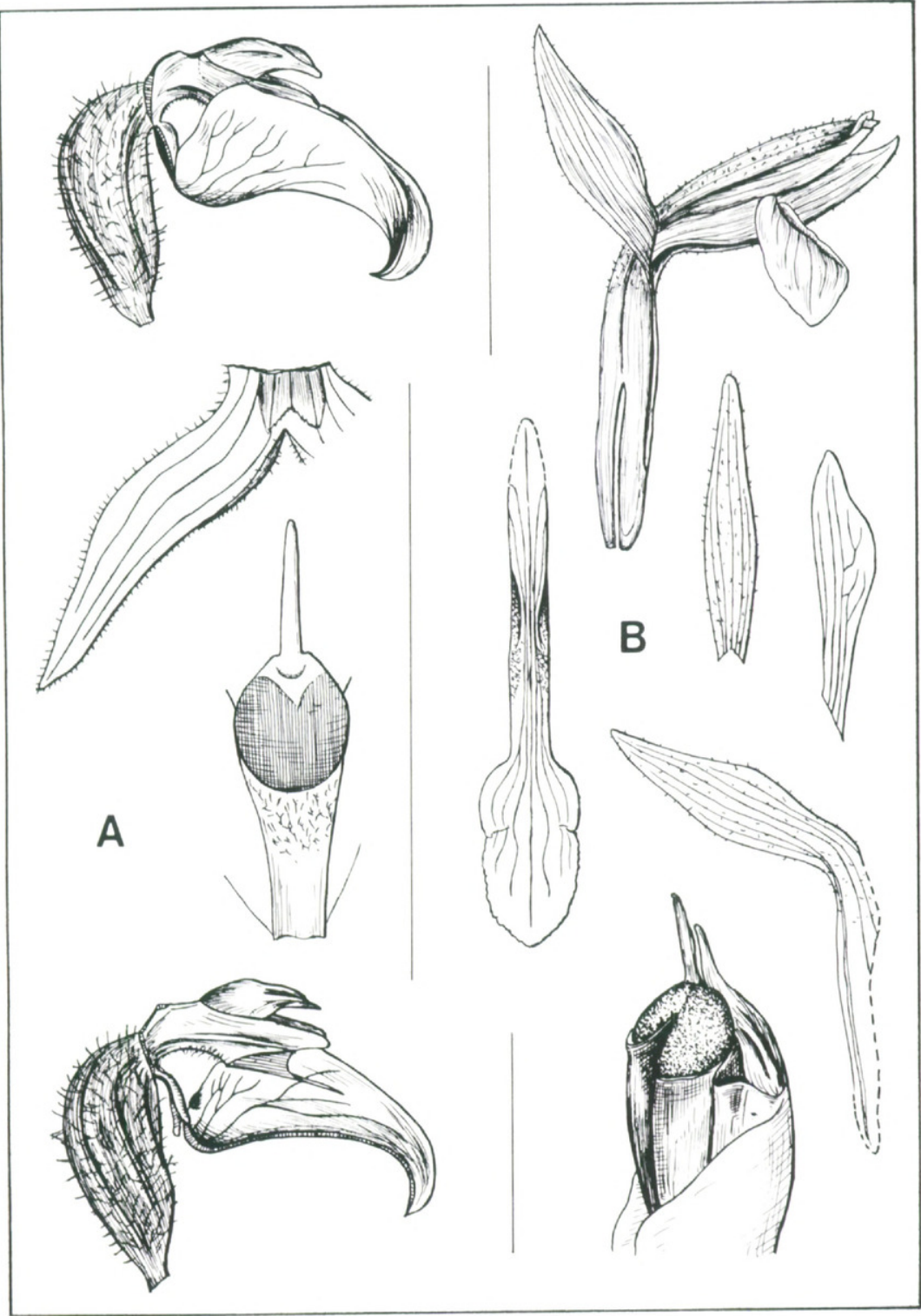


Plate 24.
A. *Dithyridanthus densiflorus* (C. Schweinf.) Garay. Type.
B. *Eltroplectris roseoalba* (Rchb.f.) Hamer & Garay.

PLATE 25

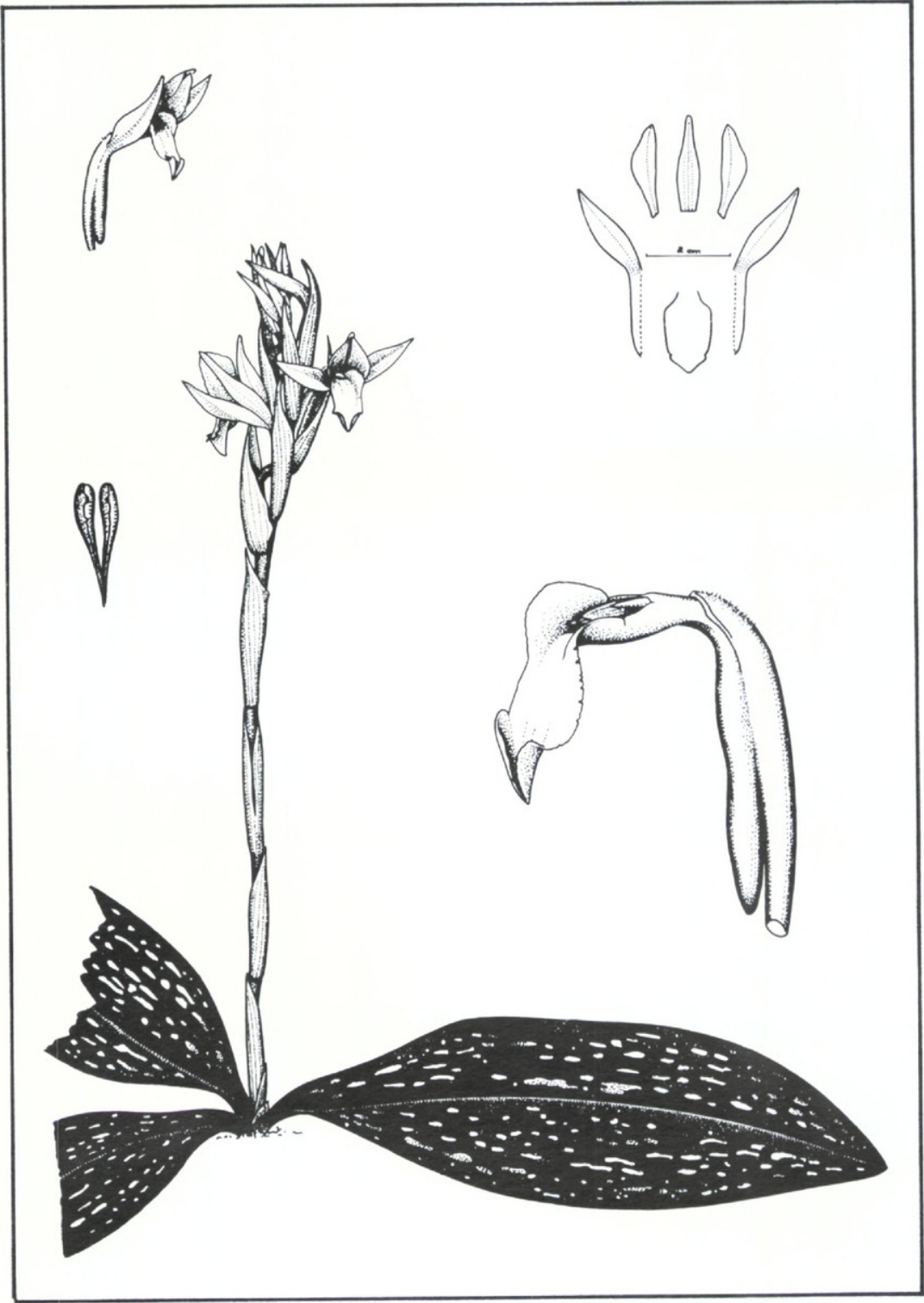


Plate 25.
Eltroplectris roseoalba (Rchb.f.) Hamer & Garay.

PLATE 26

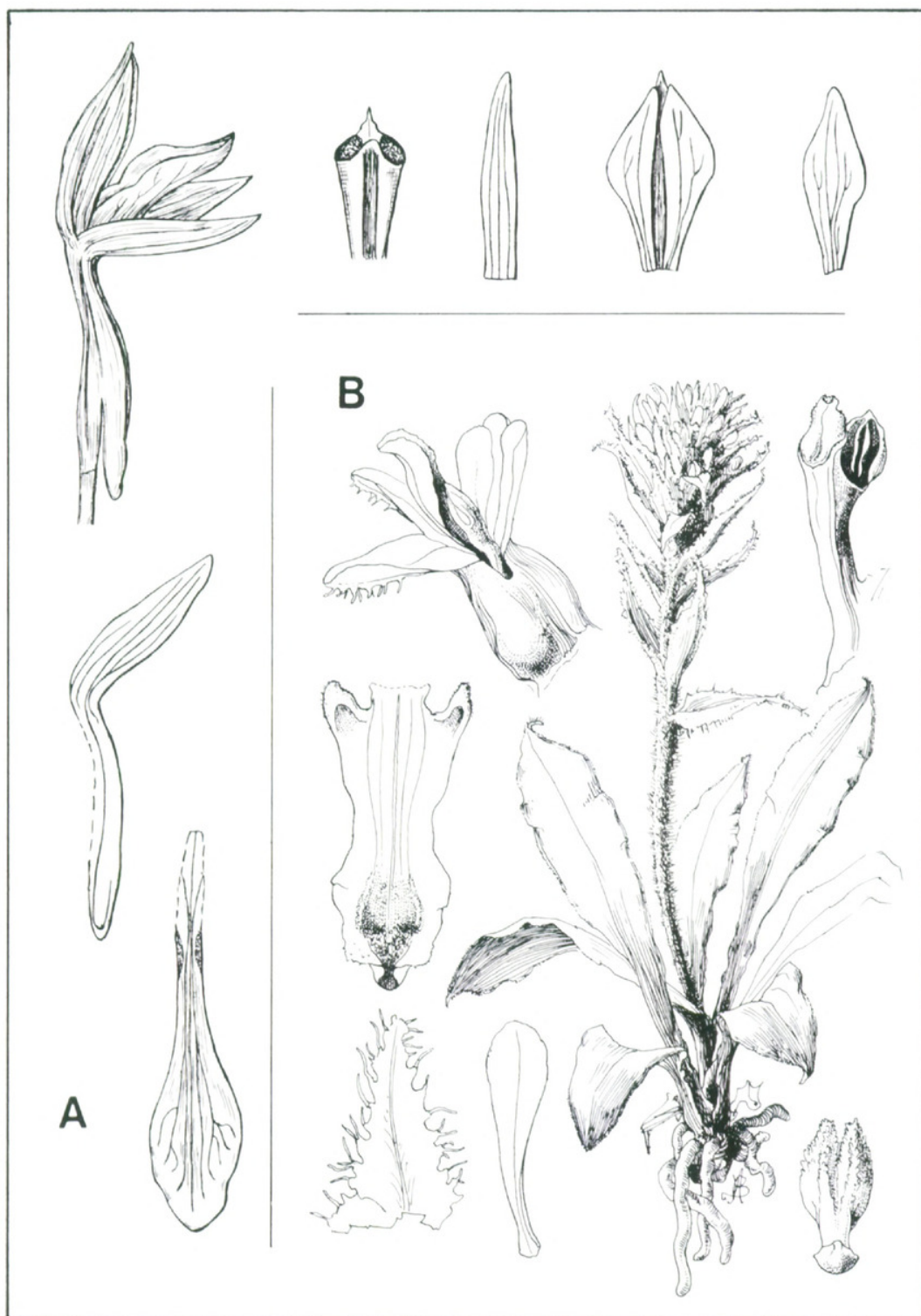


Plate 26.

A. *Eltropectris Travassosii* (Rolfe) Garay.

B. *Eurystyles Standleyi* Ames. Type.

PLATE 27

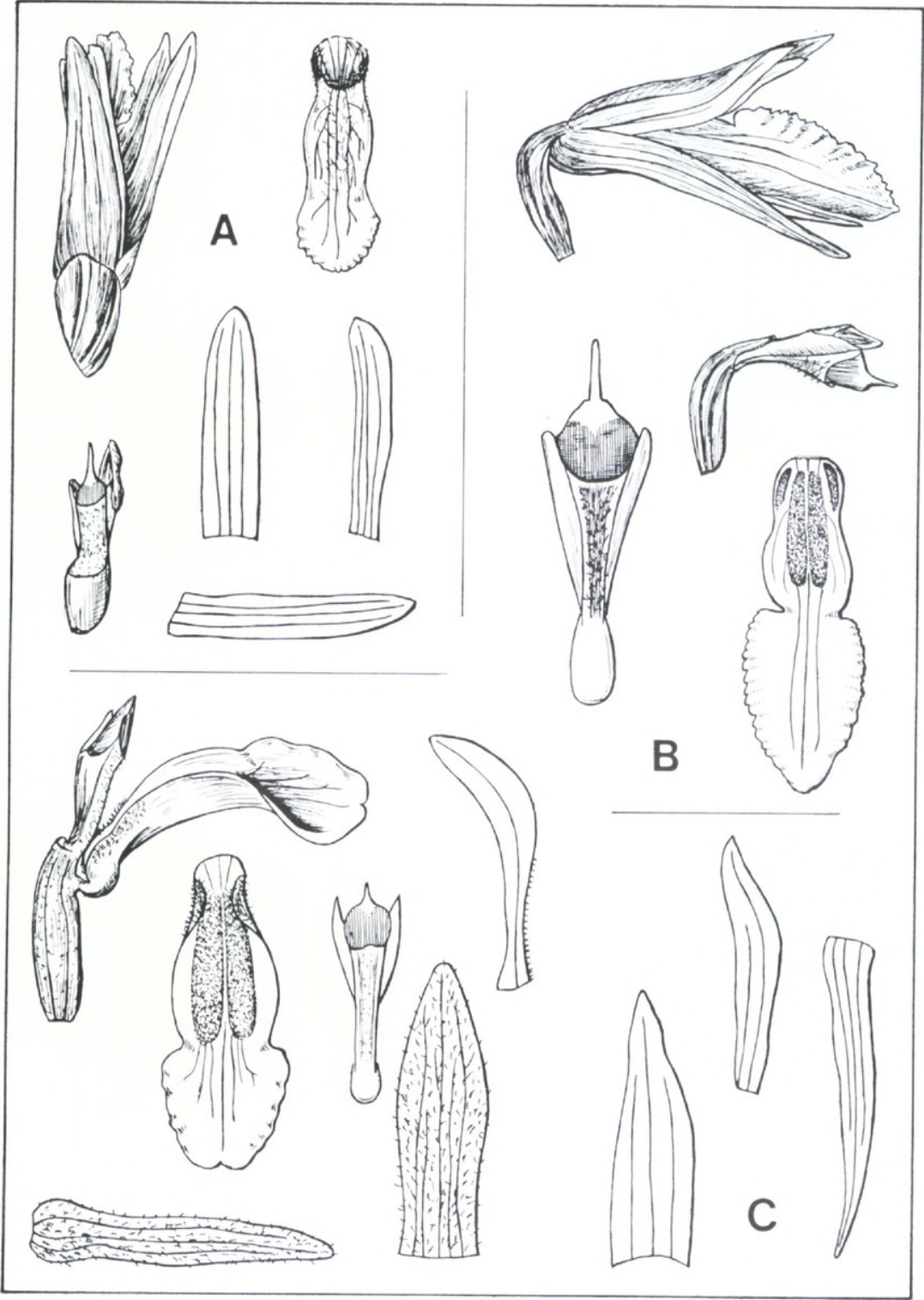


Plate 27.
A. *Funckiella congestiflora* (L.O.Wms.) Garay. Type.
B. *Funckiella hyemalis* (Rich. & Gal.) Schltr. Type.
C. *Funckiella stolonifera* (Ames & Correll) Garay. Type.

PLATE 28

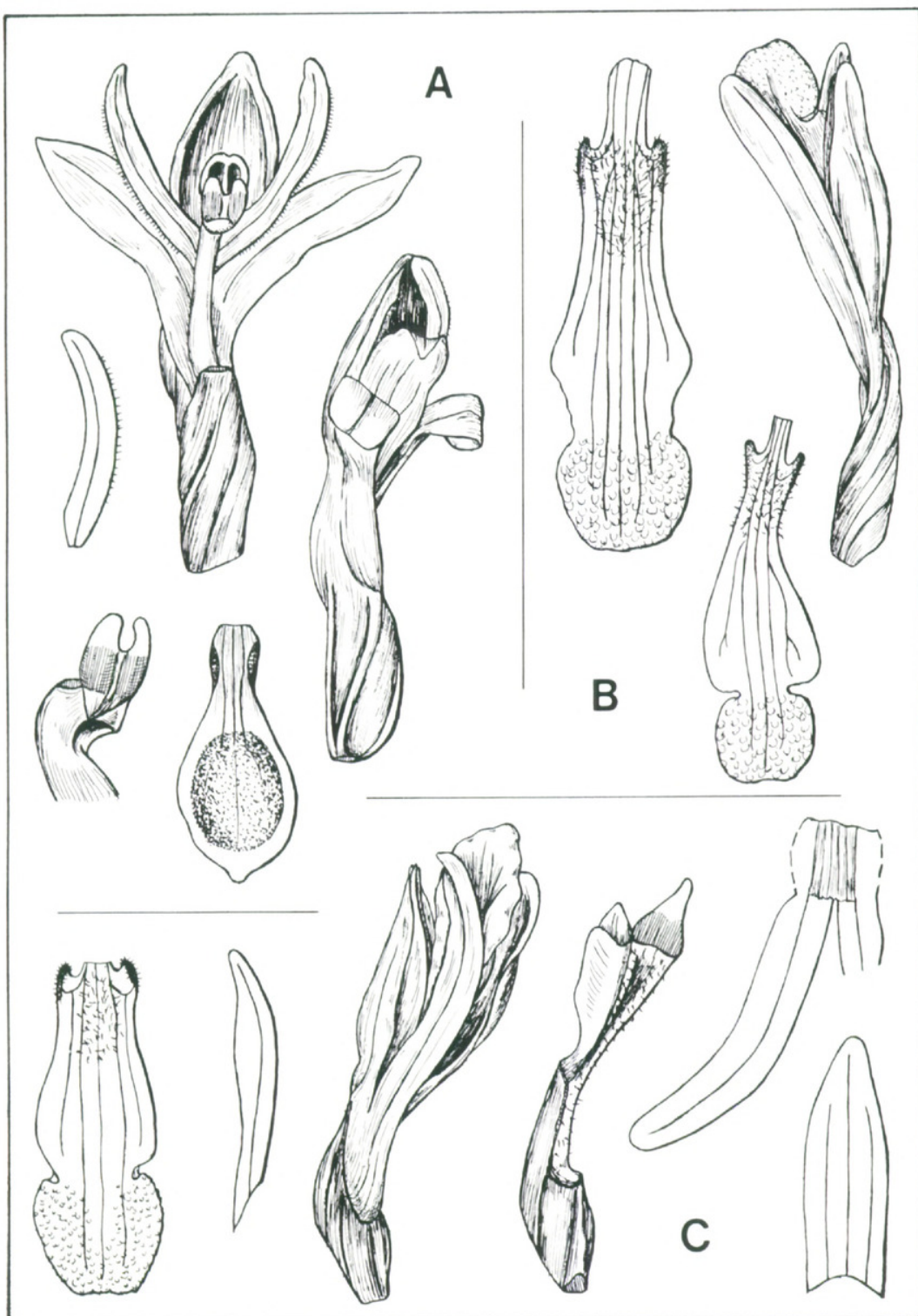


Plate 28.

- A. *Galeottiella sarcoglossa* (Rich. & Gal.) Schltr.
 B. *Gularia trilineata* (Lindl.) Garay. Type.
 C. *Gularia crenulata* (L.O.Wms.) Garay. Type.

PLATE 29

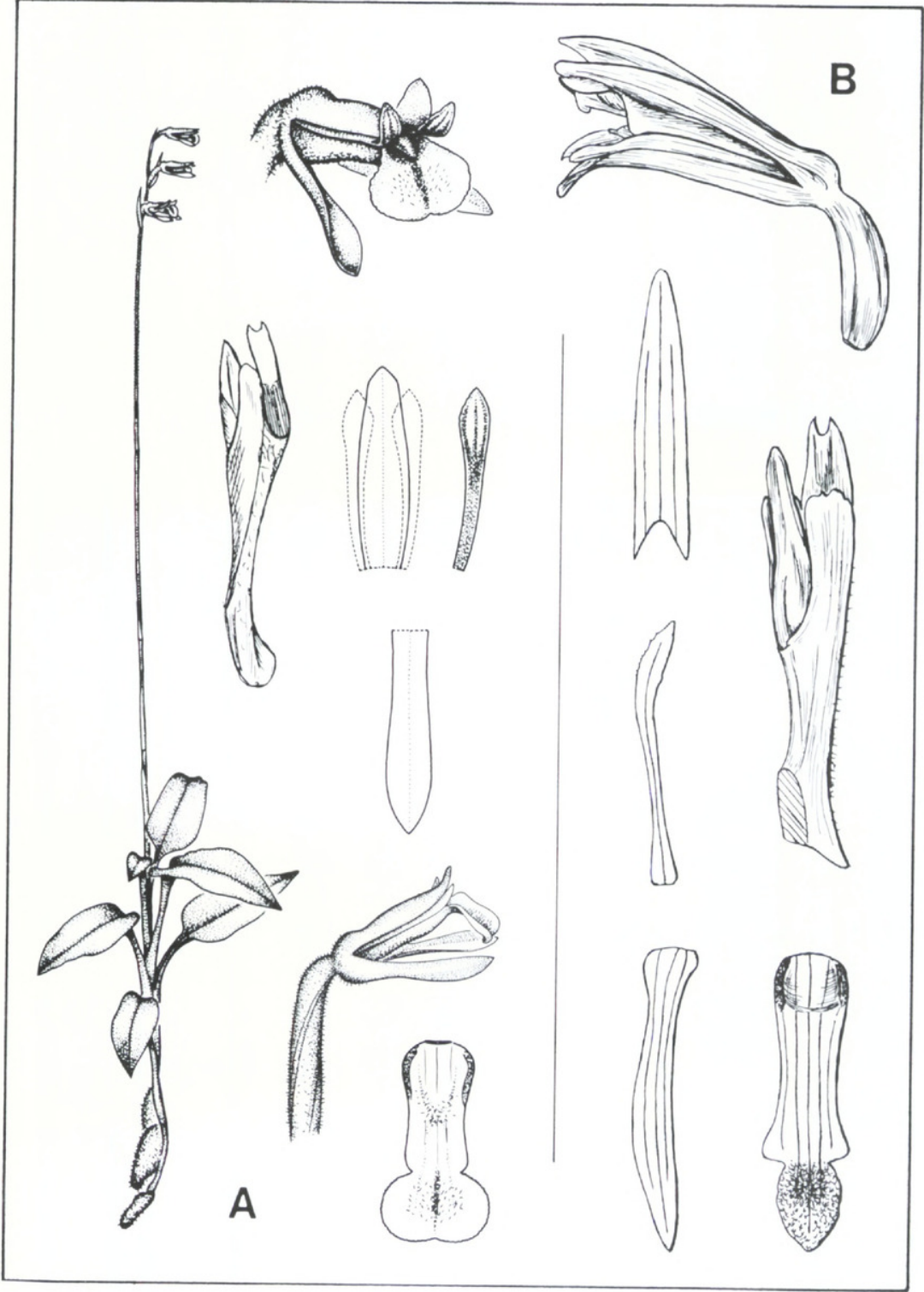


Plate 29.
A. *Hapalorchis cheirostylodes* Schltr.
B. *Hapalorchis trilobata* Schltr.

PLATE 30

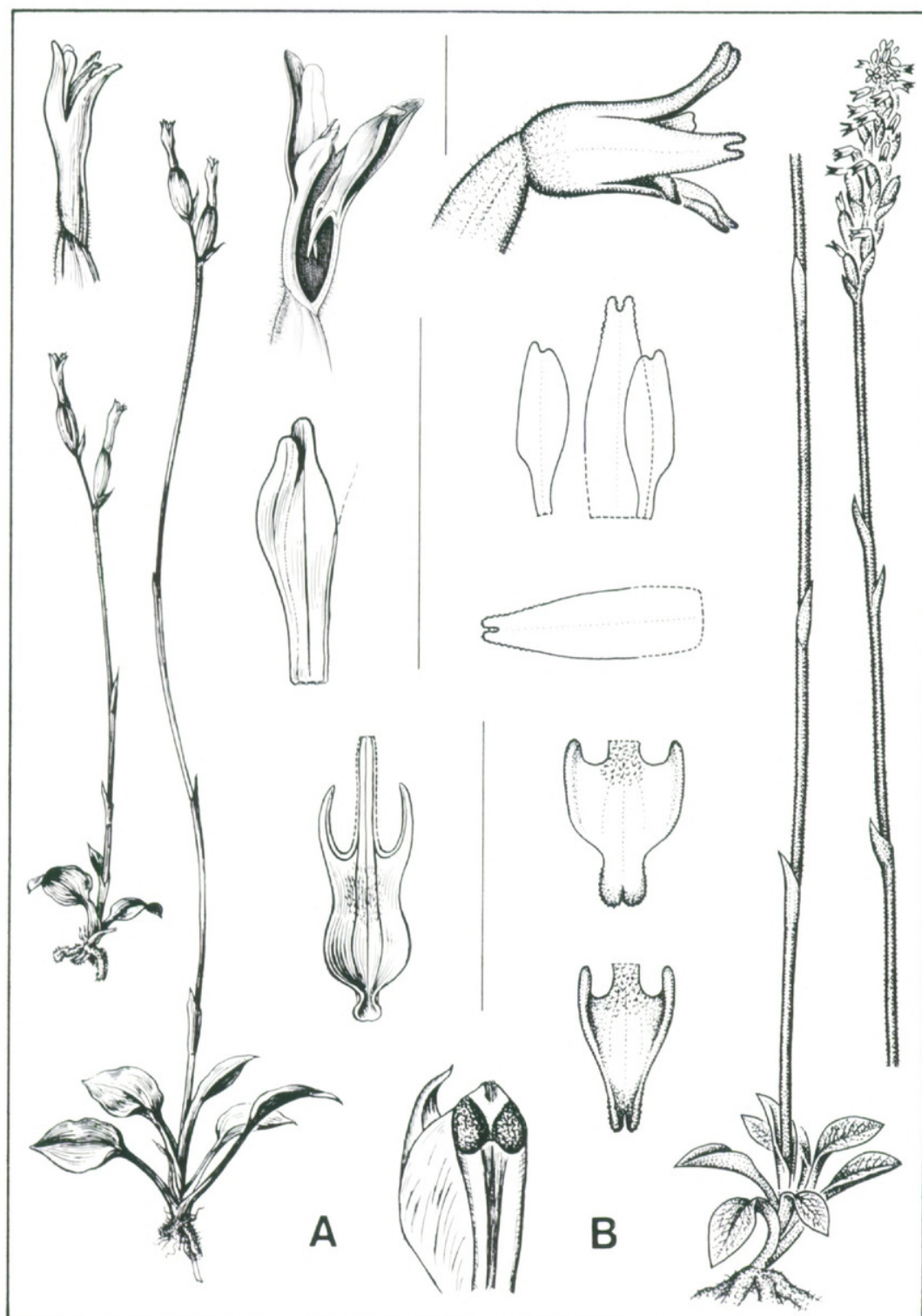


Plate 30.

- A. *Helonoma americana* (C. Schweinf. & Garay) Garay. Type.
 B. *Helonoma bifida* (Ridl.) Garay.

PLATE 31

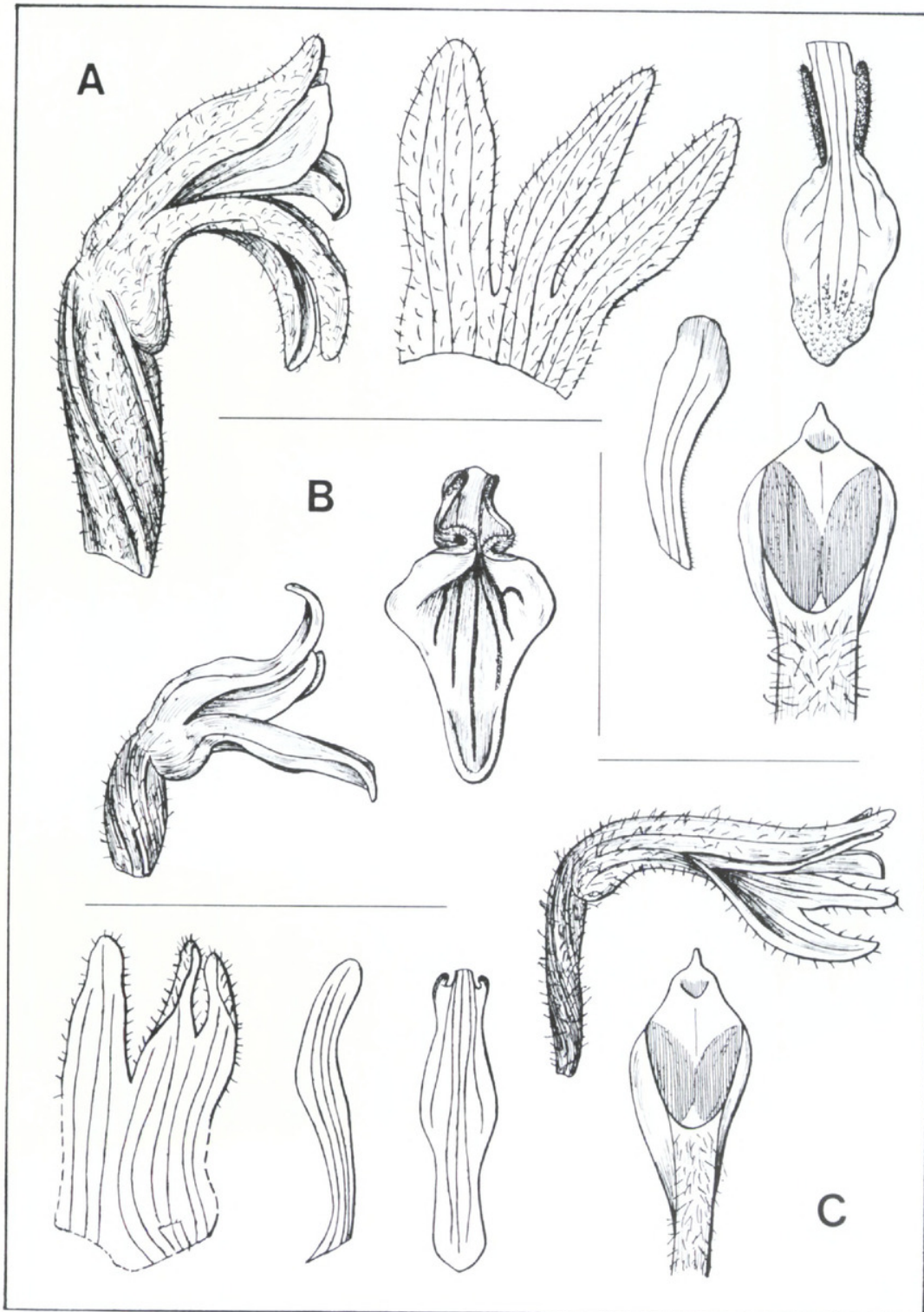


Plate 31.

- A. *Kionophyton seminuda* (Schltr.) Garay. Type.
- B. *Kionophyton pyramidalis* (Lindl.) Garay.
- C. *Kionophyton Sawyeri* (Standl. & L.O.Wms.) Garay.

The illustration is divided into three main sections labeled A, B, and C. Section A (top left) shows a whole plant with a long, slender stem and a terminal inflorescence, along with detailed views of the sepals, petals, and labellum. Section B (bottom left) shows a whole plant with a more robust stem and a terminal inflorescence, along with detailed views of the sepals, petals, and labellum. Section C (right) shows a whole plant with a more robust stem and a terminal inflorescence, along with detailed views of the sepals, petals, and labellum. The drawings are executed in a detailed, stippled style, showing the texture of the plant parts.

A. **Lyroglossa Grisebachii** (Cogn.) Schltr. (Type of *Spiranthes euglossa* Krzl.)
 B. **Lyroglossa pubicaulis** (L.O.Wms.) Garay. Type.
 C. **Lankesterella caespitosa** (Lindl.) Hoehne. Type.

PLATE 33

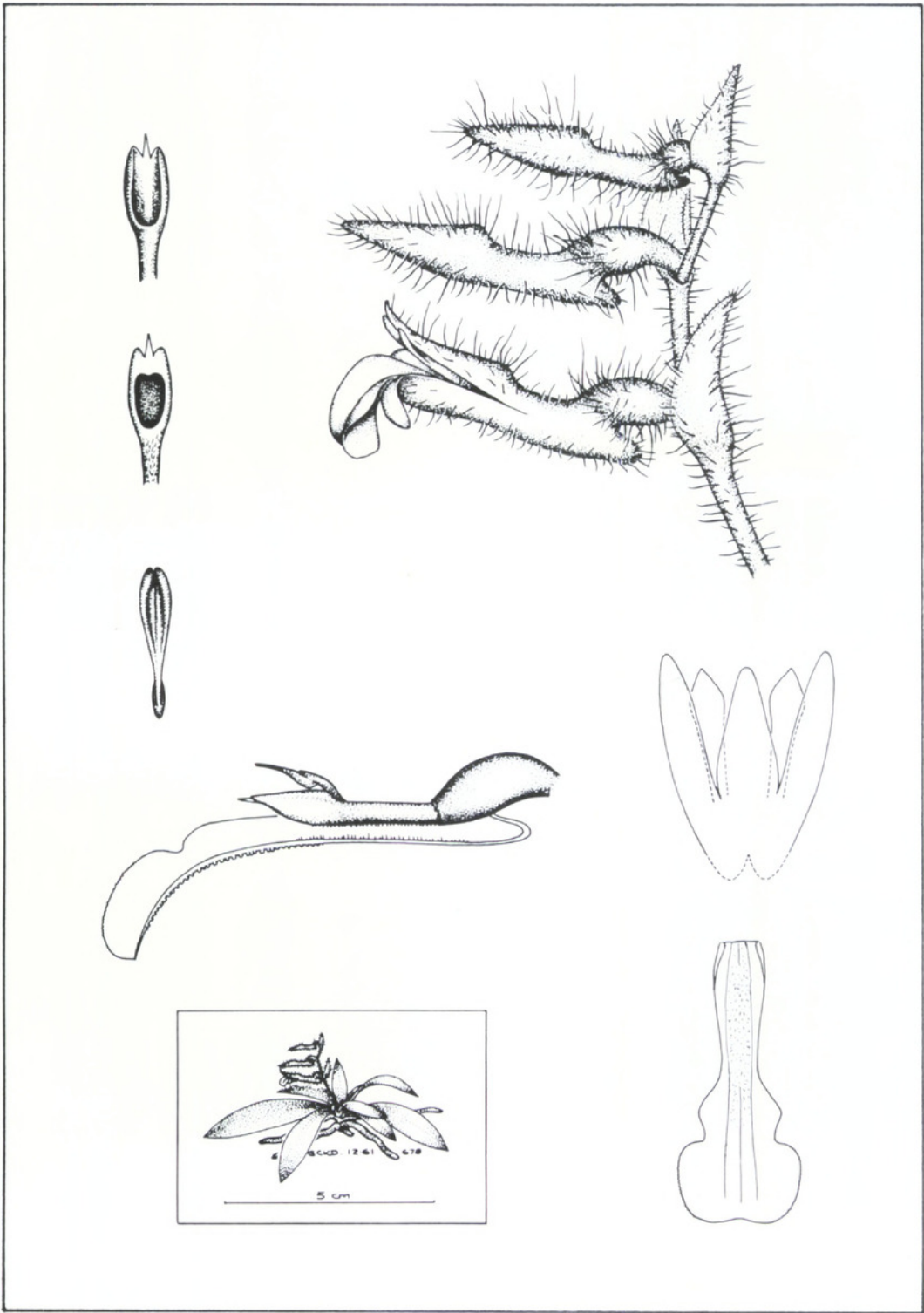


Plate 33.
Lankesterella ceracifolia (Barb. Rodr.) Mansf.

PLATE 34

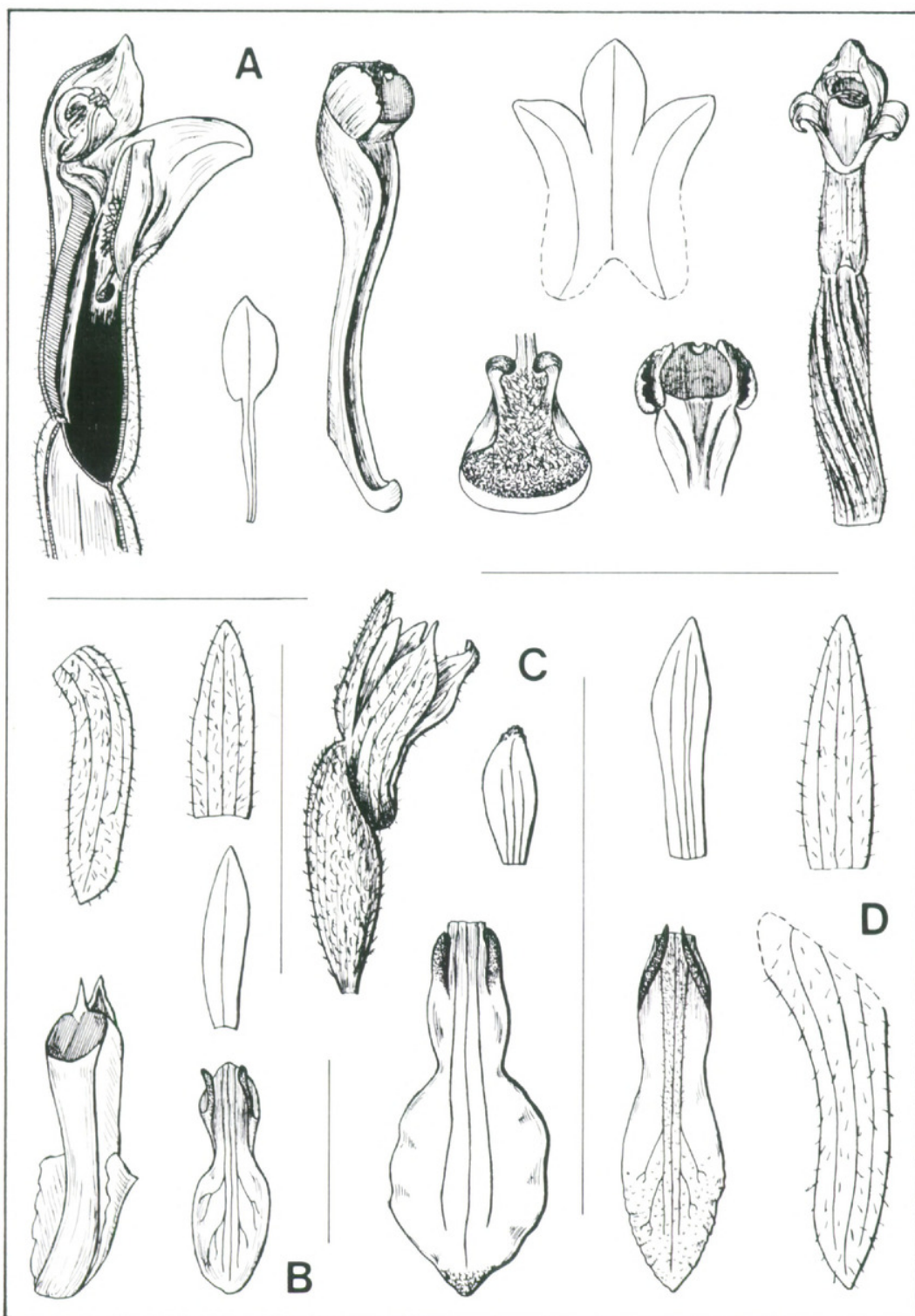


Plate 34.

- A. *Manniella Gustavii* Rchb.f. Type.
- B. *Mesadenella peruviana* Garay. Type.
- C. *Mesadenella cuspidata* (Lindl.) Garay. Type.
- D. *Mesadenella angustisegmenta* Garay. Type.

PLATE 35

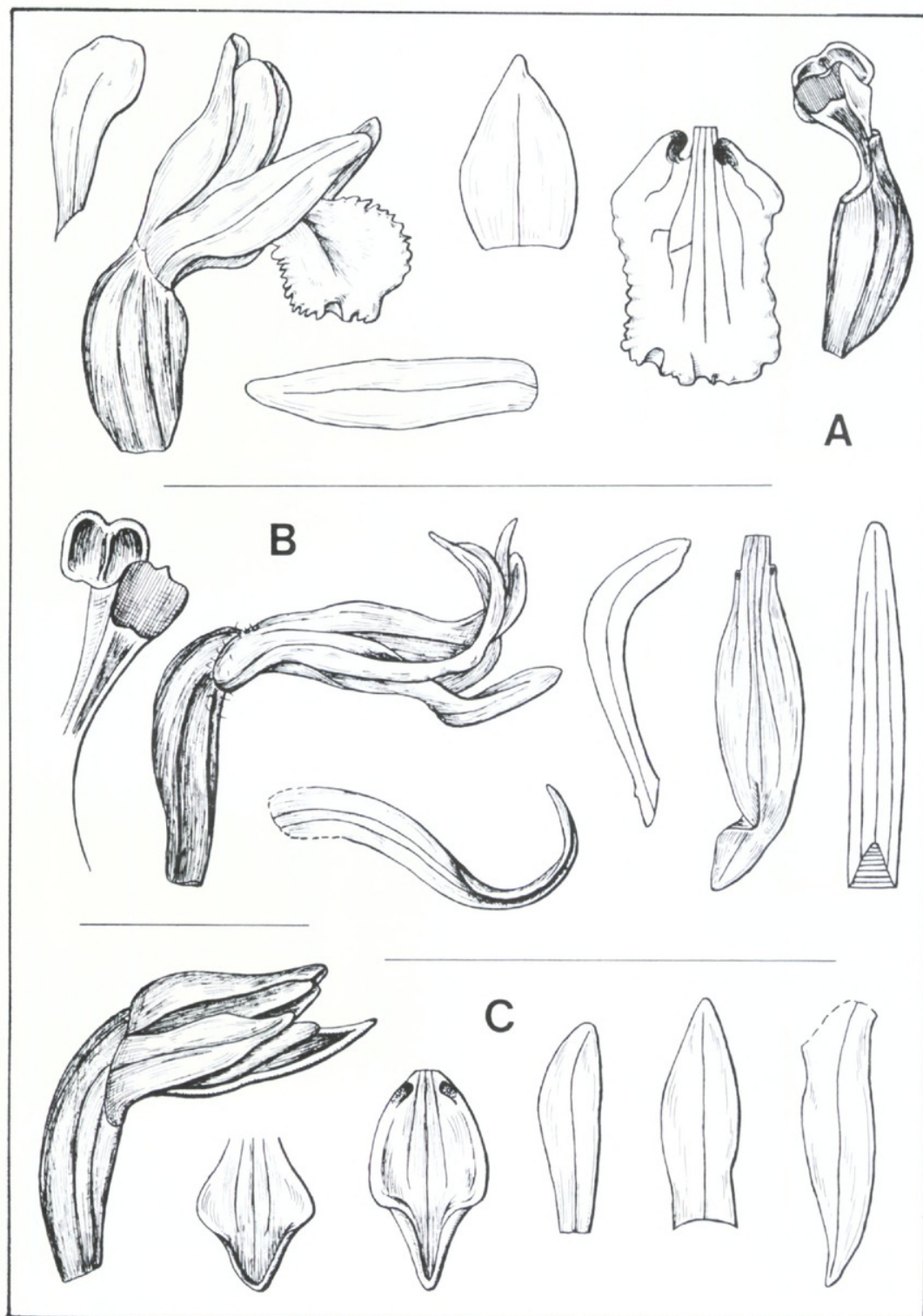


Plate 35.

- A. *Mesadenus affinis* (C. Schweinf.) Garay. Type.
- B. *Mesadenus lucayanus* (Britt.) Schltr. Type.
- C. *Mesadenus rhomboglossus* (Pabst) Garay. Type.

PLATE 36

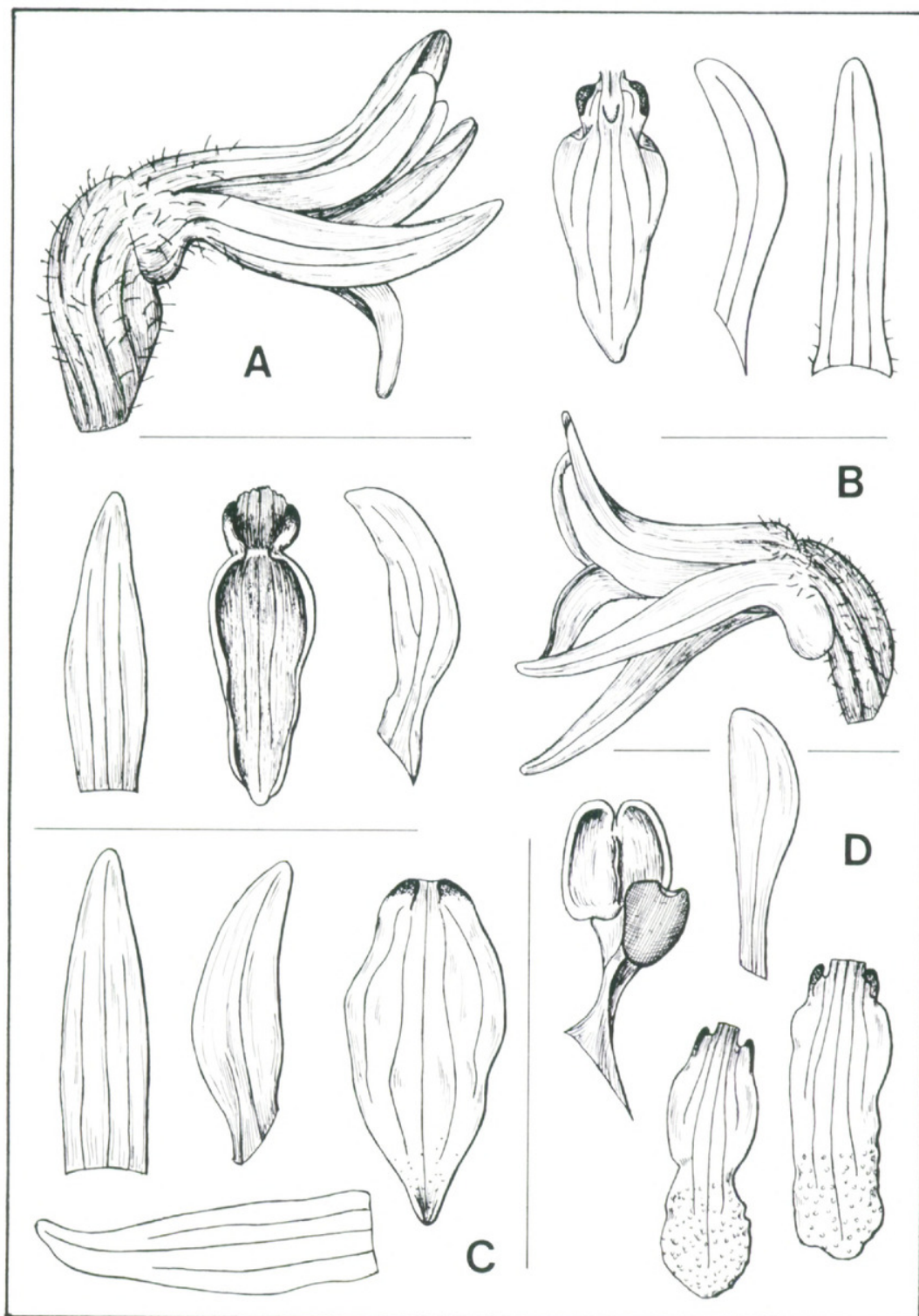


Plate 36.

- A. **Mesadenus Chiangii** (Johnst.) Garay. Type.
- B. **Mesadenus Glaziovii** (Cogn.) Schltr.
- C. **Mesadenus Stahlia** (Cogn.) Garay. Type.
- D. **Mesadenus tenuissimus** (L.O.Wms.) Garay. Type.

PLATE 37

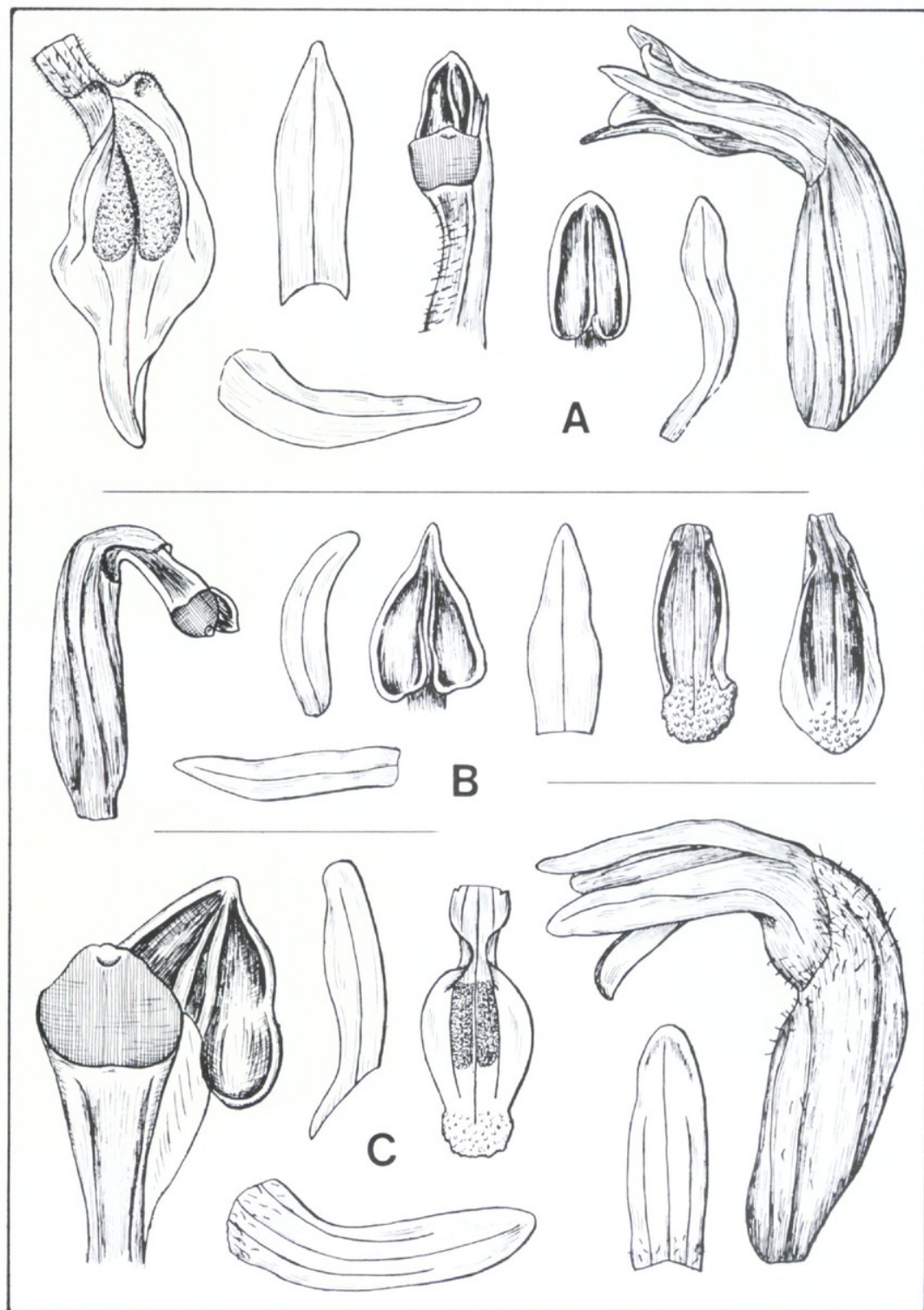


Plate 37.

- A. *Microthelys minutiflora* (Rich. & Gal.) Garay.
- B. *Microthelys nutantiflora* (Schltr.) Garay.
- C. *Microthelys rubrocallosa* (Robins. & Greenm.) Garay. Type.

PLATE 38

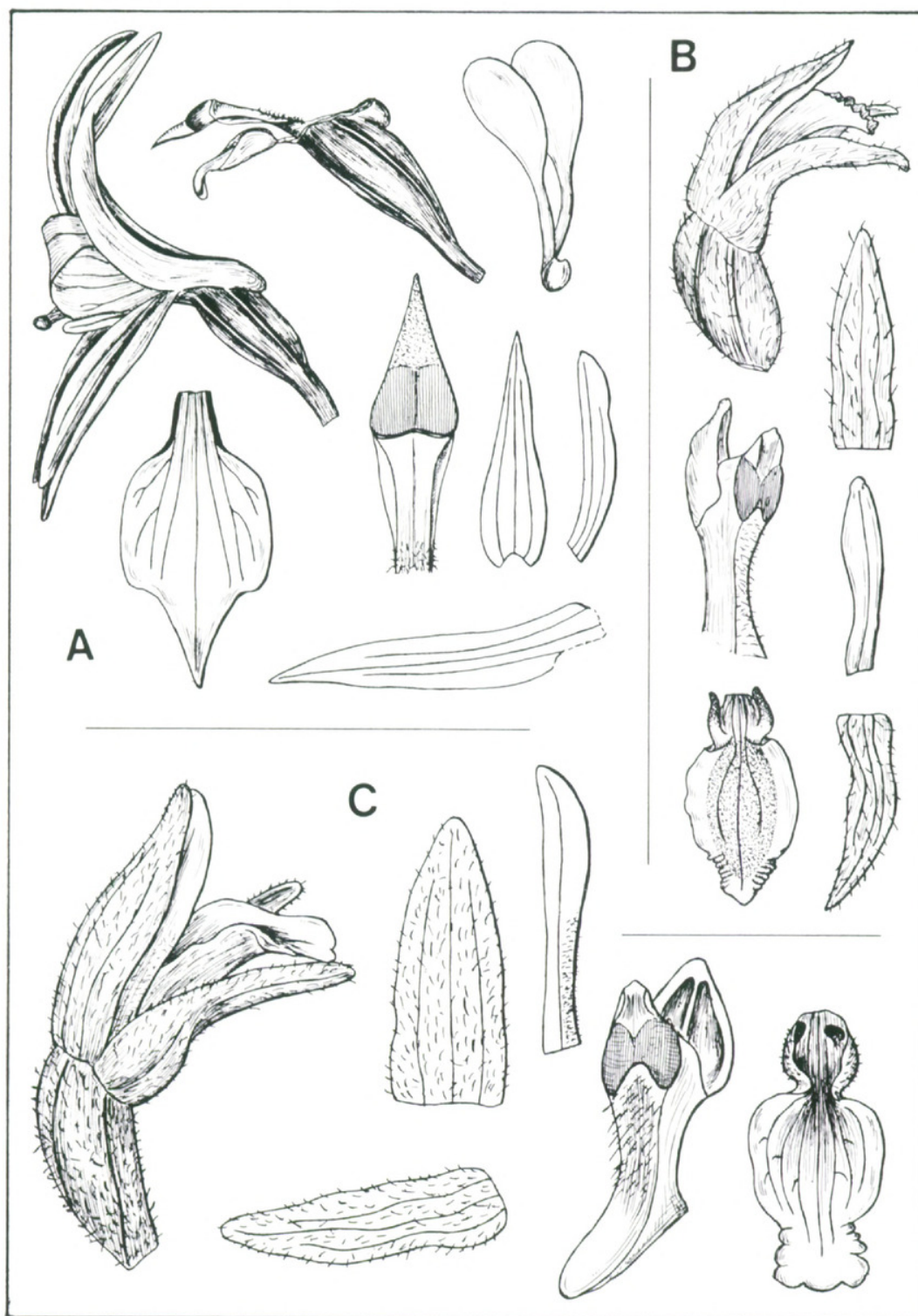


Plate 38.

A. *Nothostele acianthiformis* (Rchb.f. & Warm.) Garay.

B. *Odontorhynchus chlorops* (Rchb.f.) Garay. (Type of *Spiranthes Bangii* Rolfe.)

C. *Odontorhynchus alticola* Garay. Type.

PLATE 39

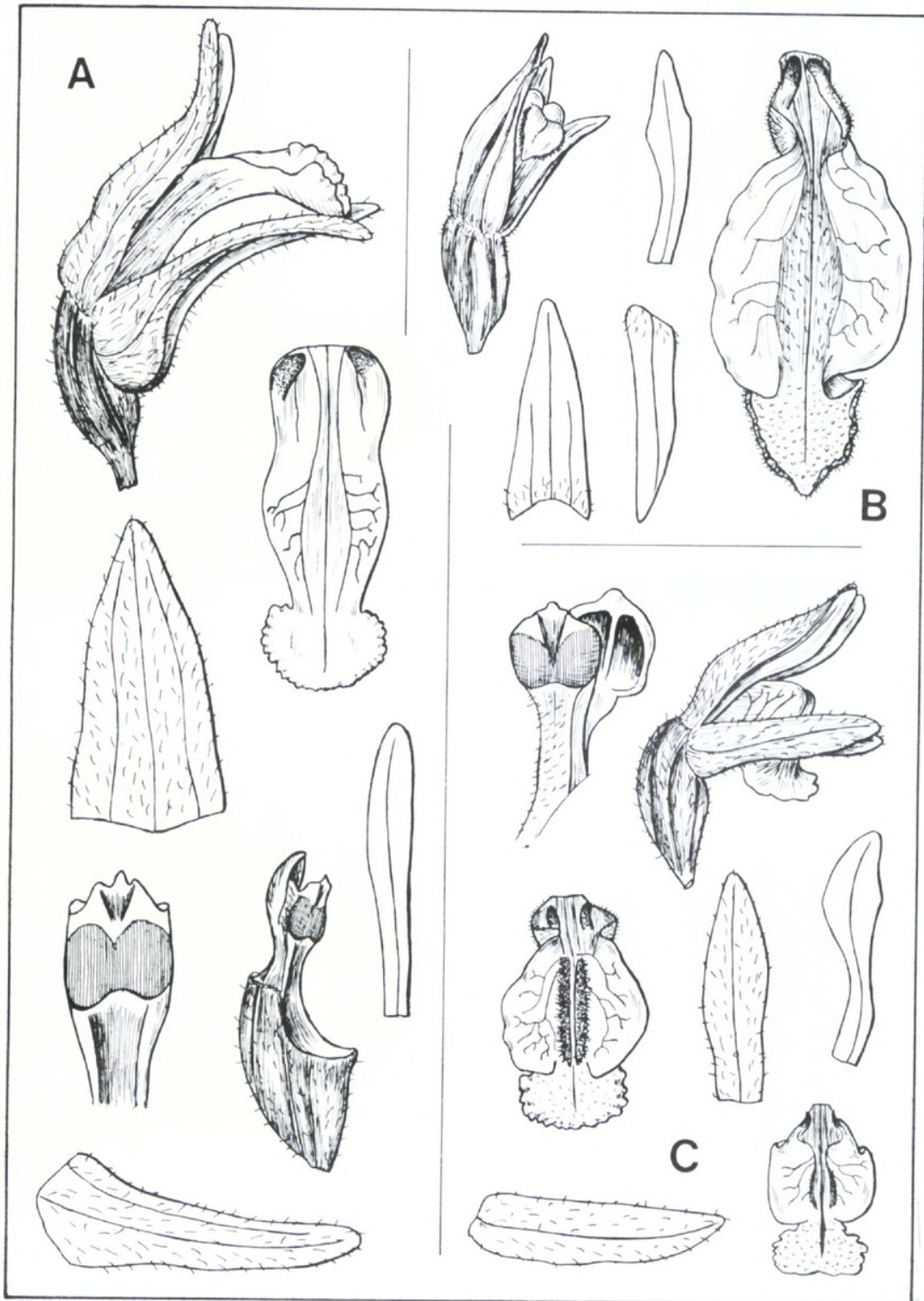


Plate 39.

- A. *Odontorhynchus Castillonii* (Haum.) Correa. Type.
- B. *Odontorhynchus chilensis* (A. Rich.) Garay.
- C. *Odontorhynchus variabilis* Garay. Type.

PLATE 40

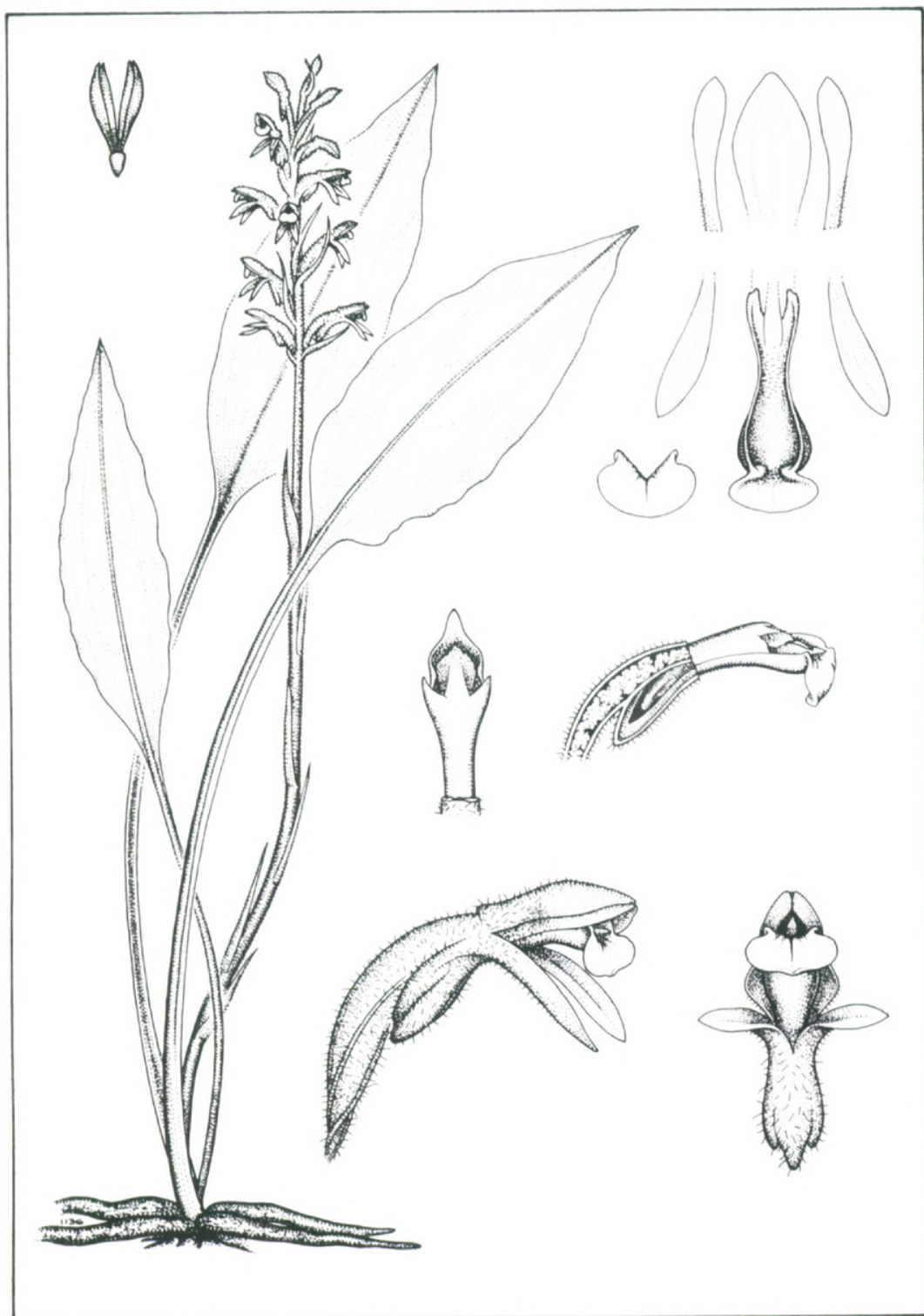


Plate 40.

Pelexia novofriburgensis (Rchb.f.) Garay.

PLATE 41

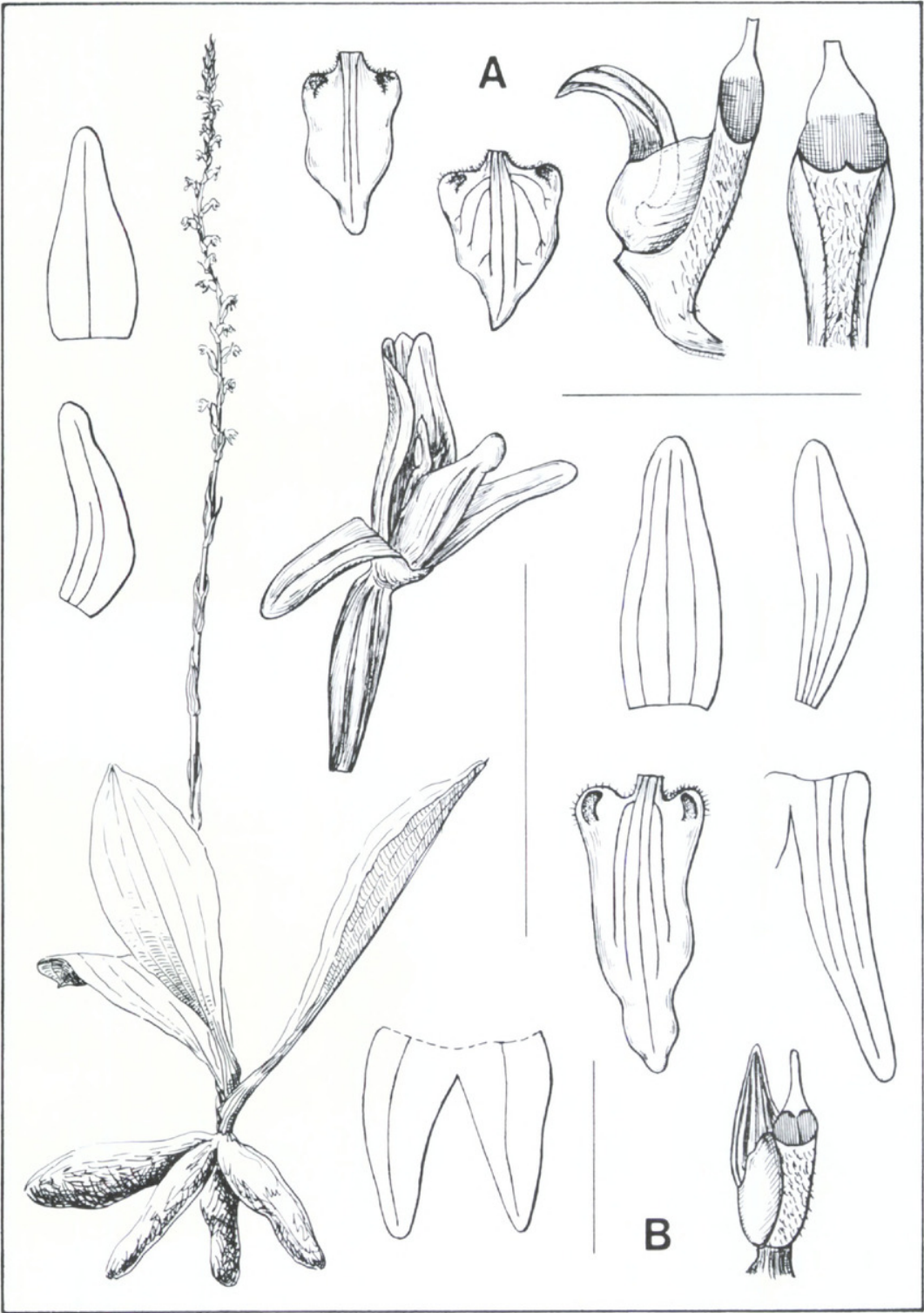


Plate 41.
A. *Physogyne Gonzalesii* (L.O.Wms.) Garay. Type.
B. *Physogyne sparsiflora* (C. Schweinf.) Garay. Type.

PLATE 42

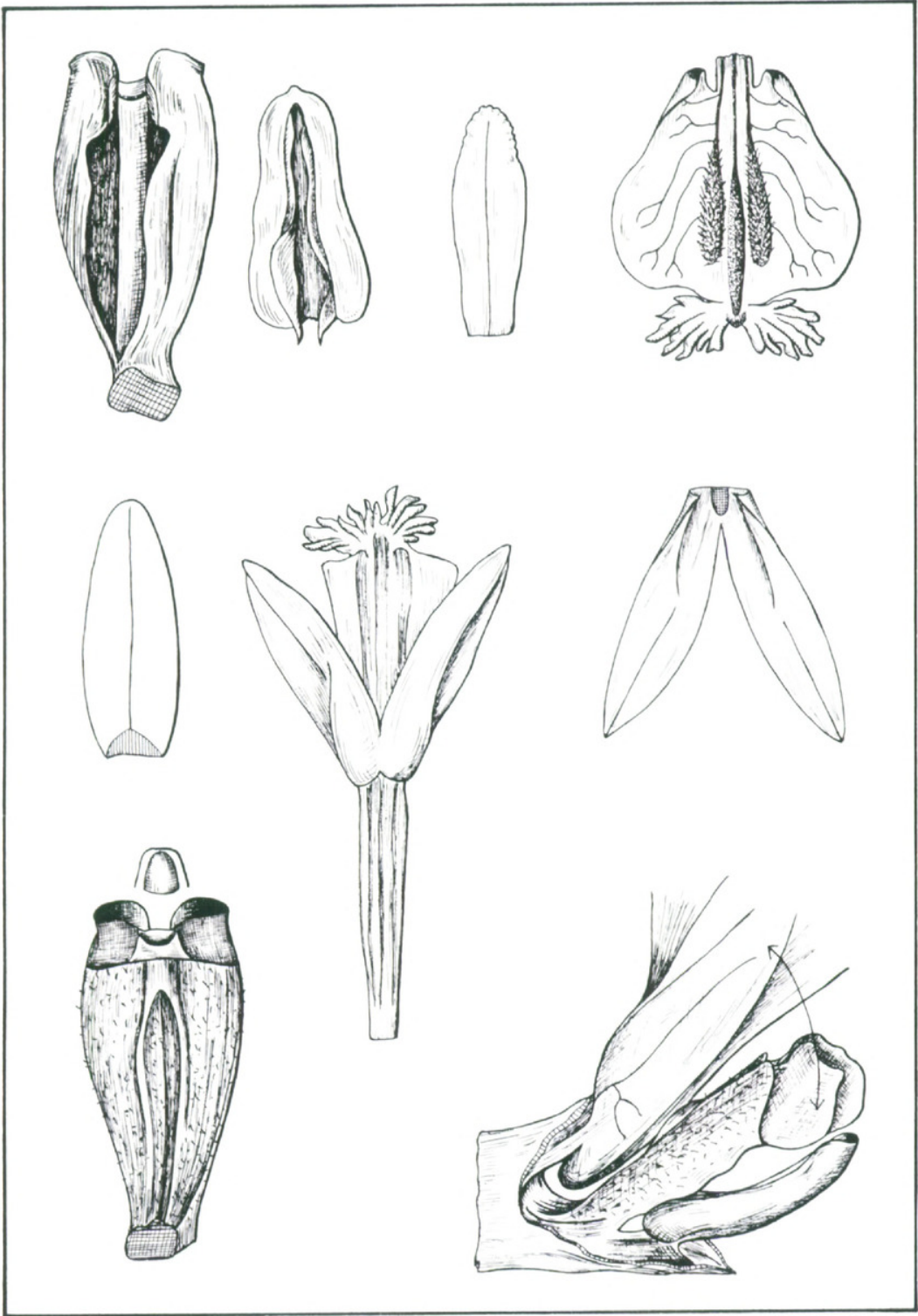


Plate 42.
Pseudocranichis thysanochila (Robins. & Greenm.) Garay. Type.

PLATE 43

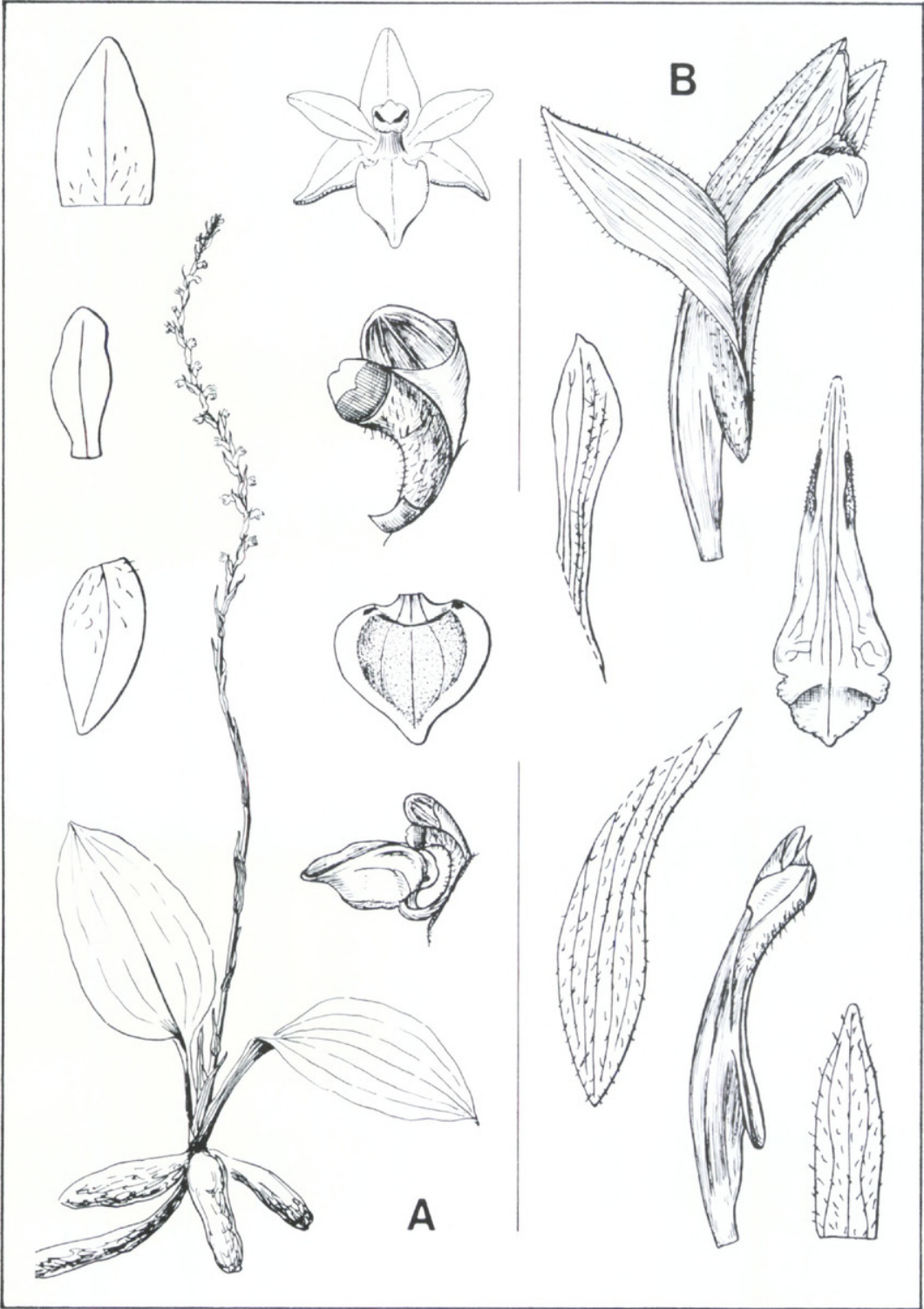


Plate 43.
A. *Pseudogoodyera Wrightii* (Rchb.f.) Schltr. Type.
B. *Pteroglossa luteola* Garay. Type.

PLATE 44

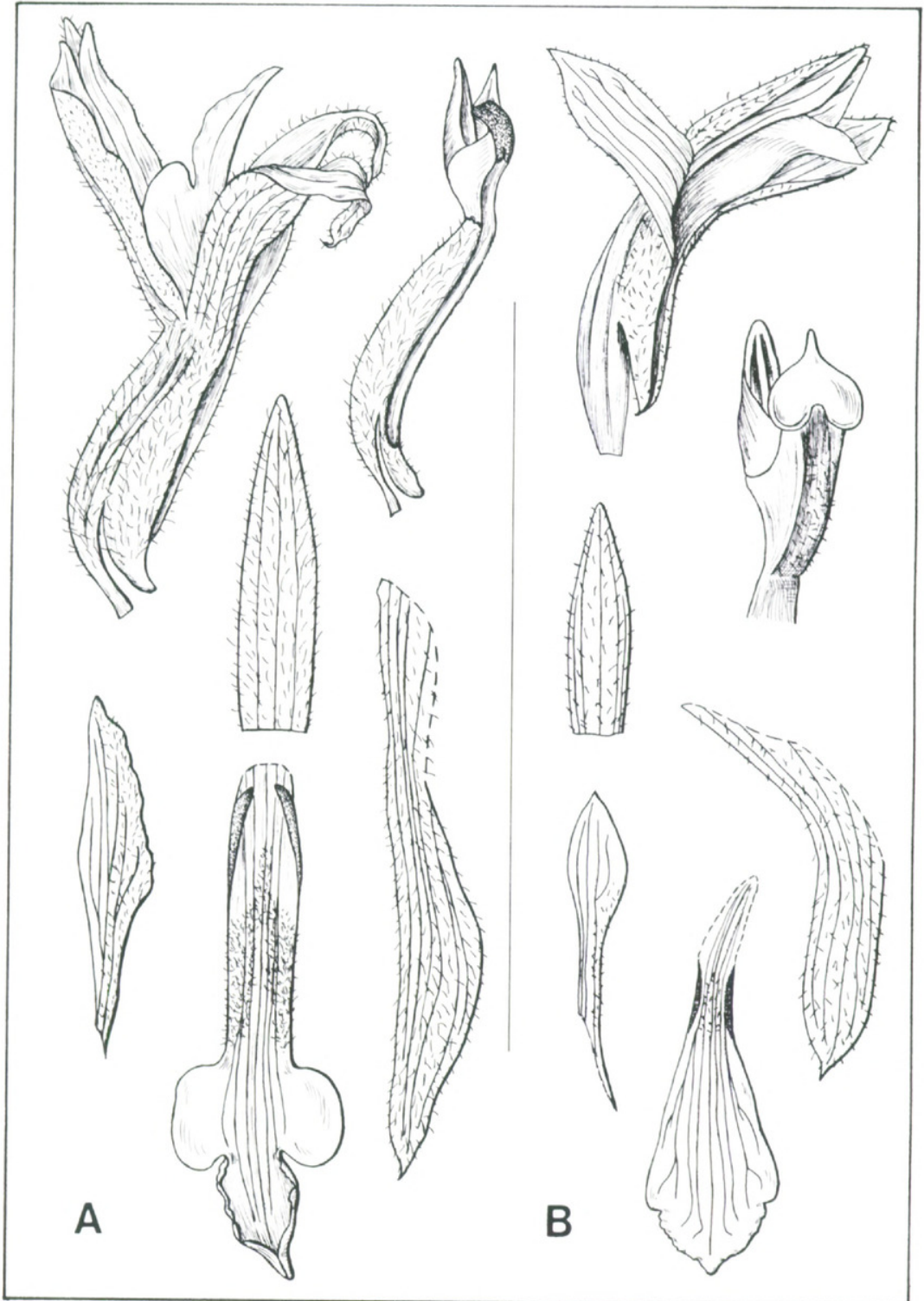


Plate 44.

- A. *Pteroglossa macrantha* (Rchb.f.) Schltr.
 B. *Pteroglossa rhombipetala* Garay. Type.

PLATE 45

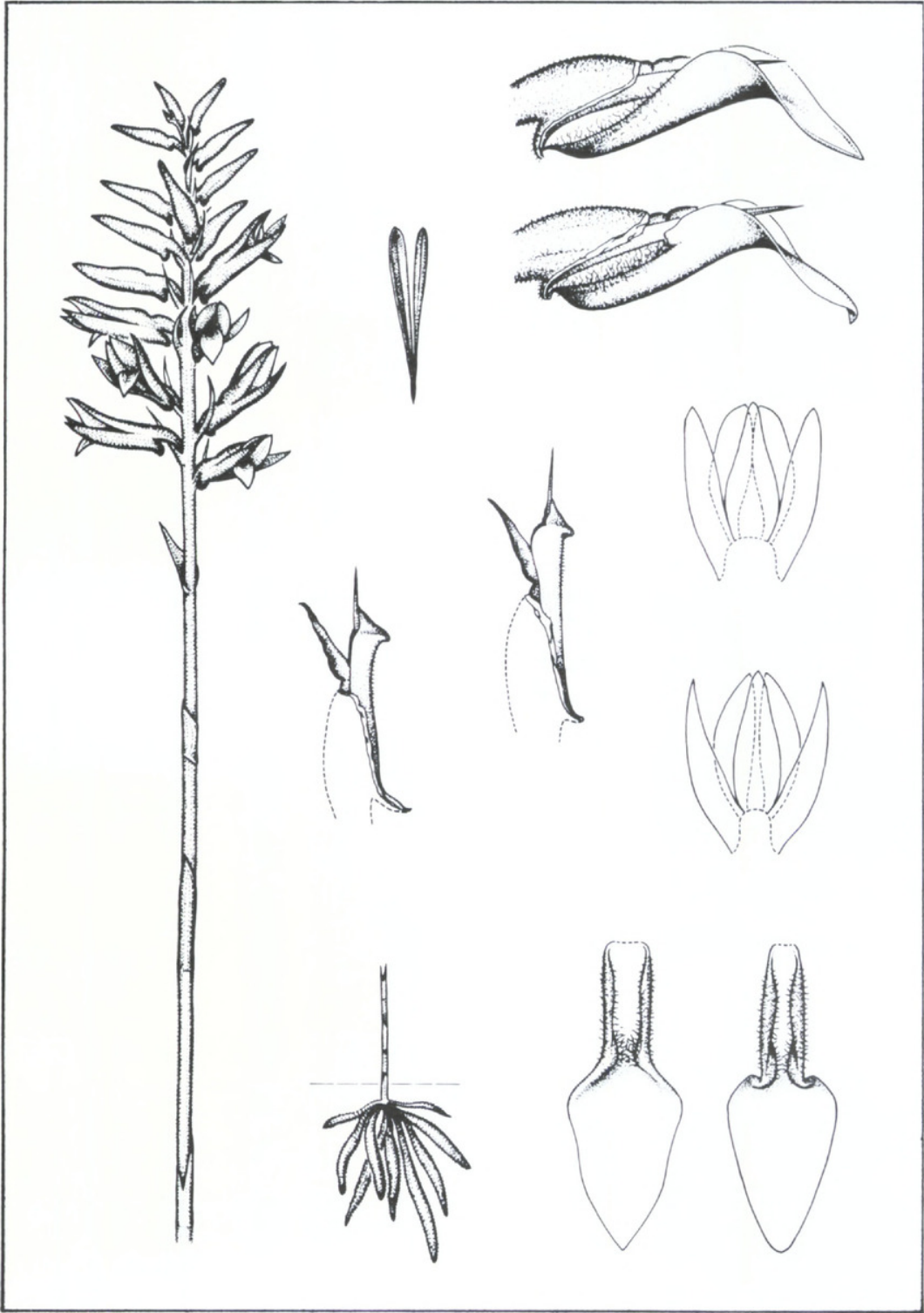


Plate 45.
Sacoila lanceolata (Aubl.) Garay.

PLATE 46



Plate 46.
Sarcoglottis acaulis (J.E.Sm.) Schltr.

PLATE 47

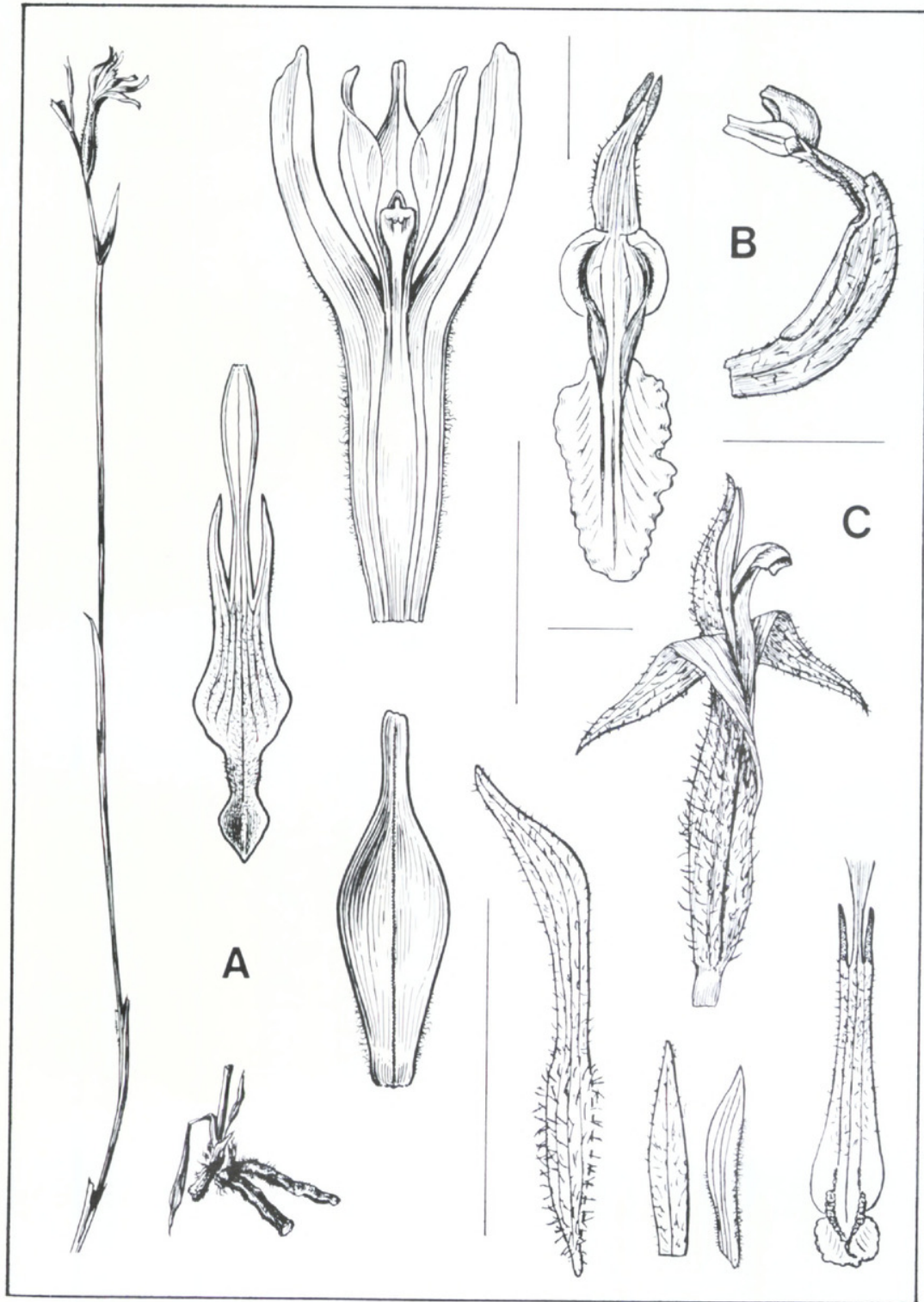


Plate 47.

- A. *Sarcoglottis simplex* (Griseb.) Schltr. (Type of *Spiranthes longiauriculata* C. Schweinf.)
 B. *Sarcoglottis homalogastra* (Rehb.f. & Warm.) Schltr.
 C. *Sarcoglottis Woodsonii* (L.O.Wms.) Garay. Type.

PLATE 48

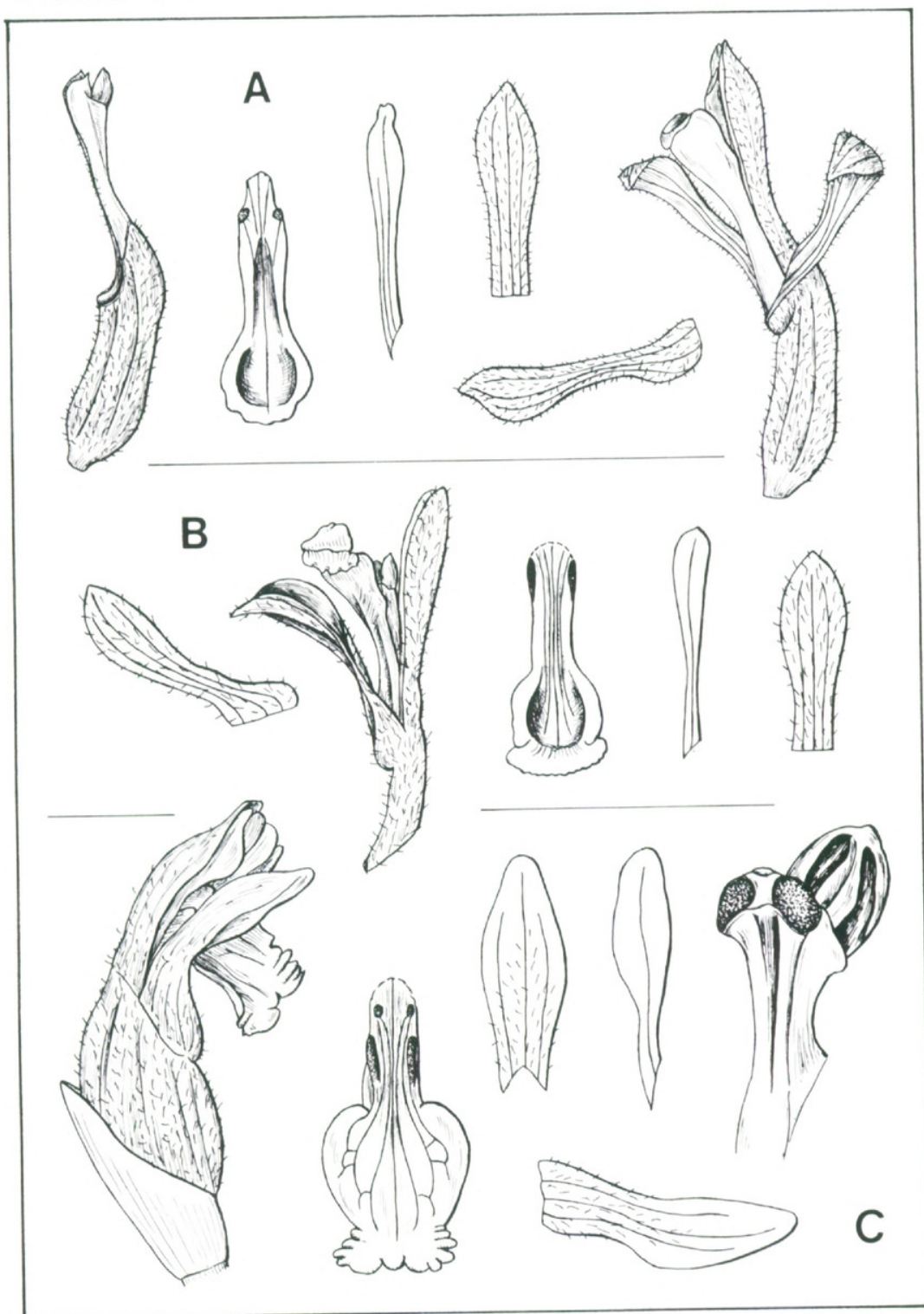


Plate 48.

- A. *Sauroglossum elatum* Lindl. Type.
- B. *Sauroglossum andinum* (Haum.) Garay. Type.
- C. *Sauroglossum Schweinfurthianum* Garay. Type.

PLATE 49

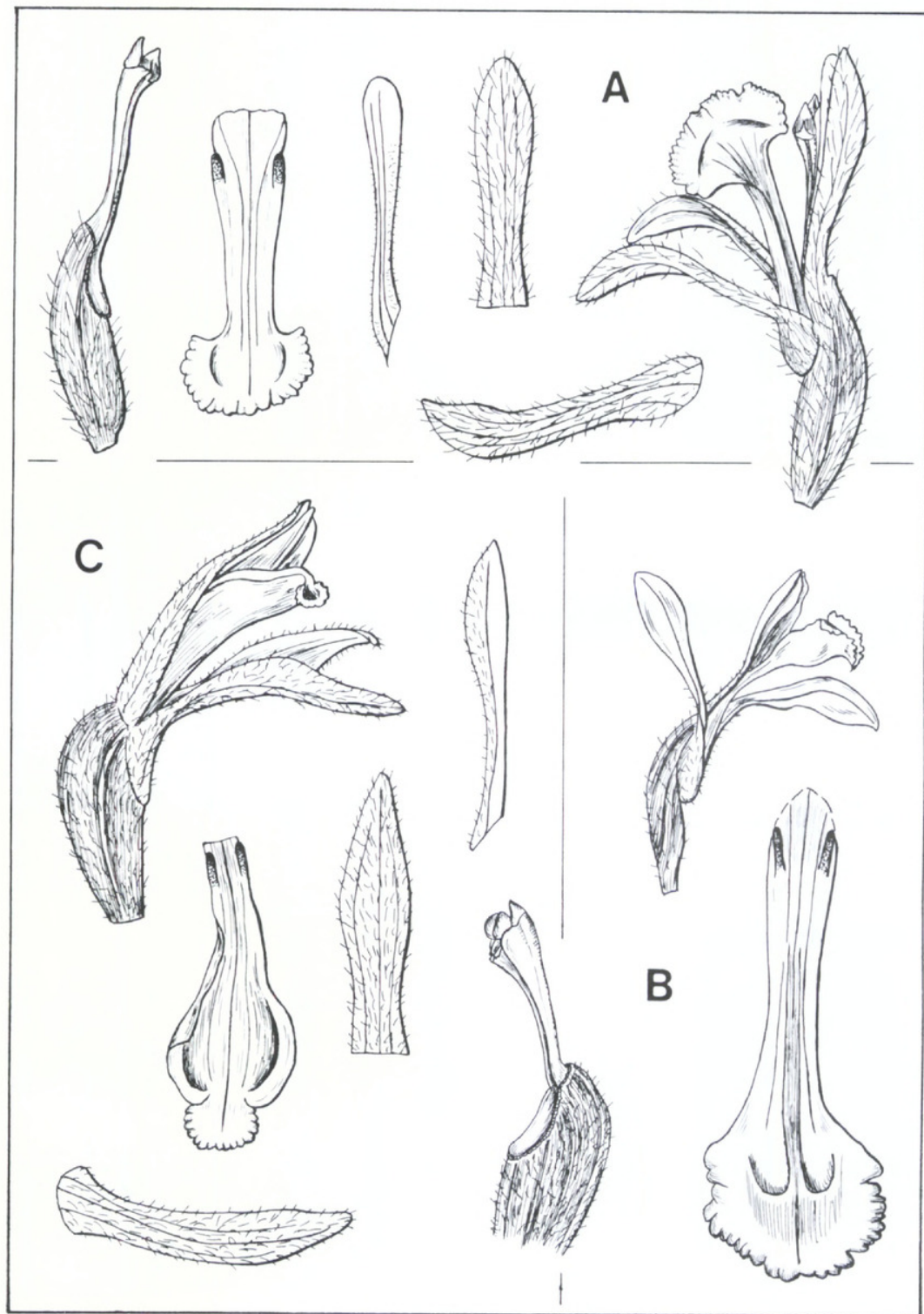


Plate 49.

- A. *Sauroglossum aurantiacum* (C.Schweinf.) Garay. Type.
- B. *Sauroglossum corymbosum* (Lindl.) Garay. Type.
- C. *Sauroglossum sellilabre* (Griseb.) Schltr. Type.

PLATE 50

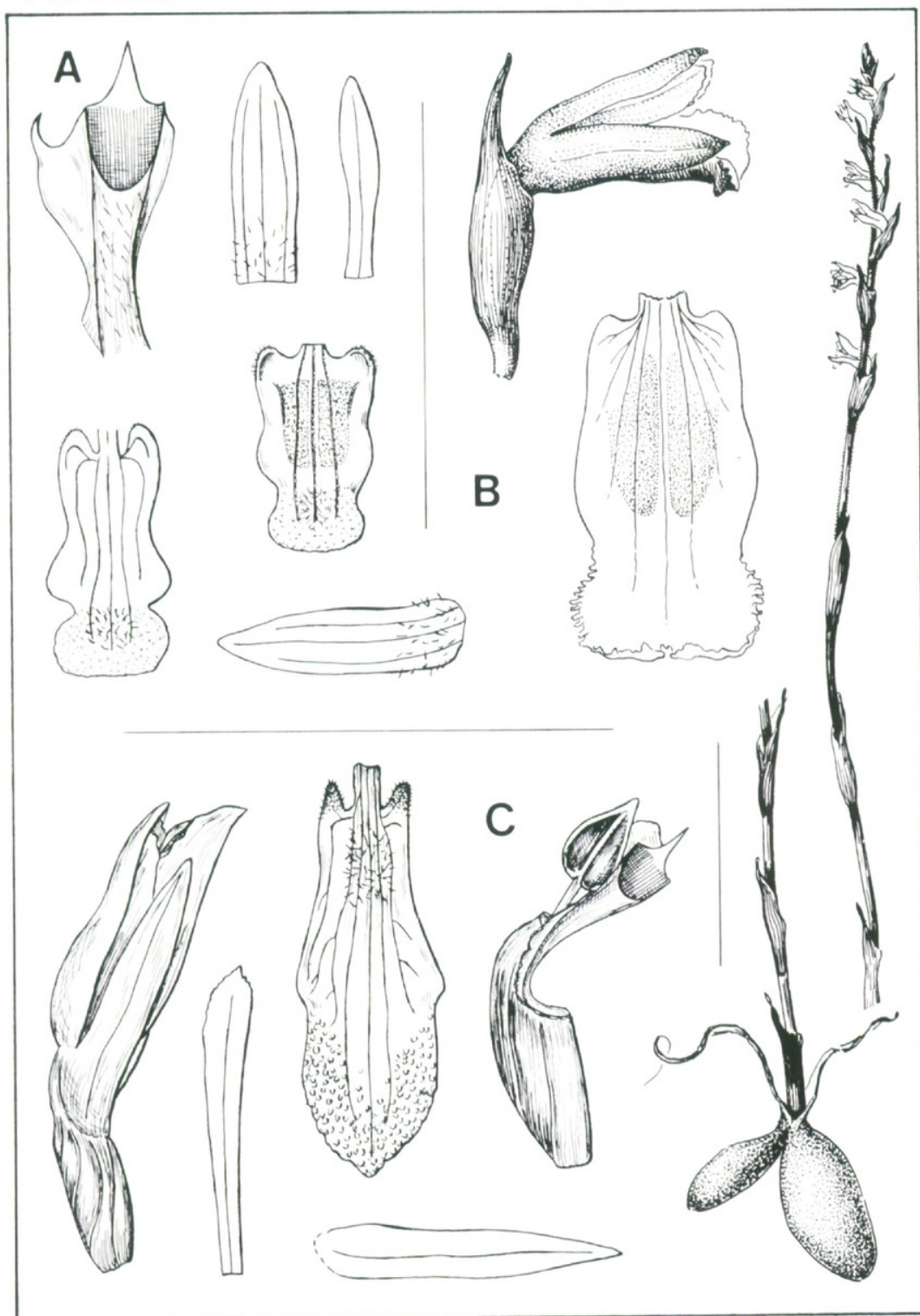


Plate 50.

- A. *Schiedeella Amesiana* Garay. Type.
- B. *Schiedeella parasitica* (Rich. & Gal.) Schltr.
- C. *Schiedeella Llaveana* (Lindl.) Schltr. Type.

PLATE 51

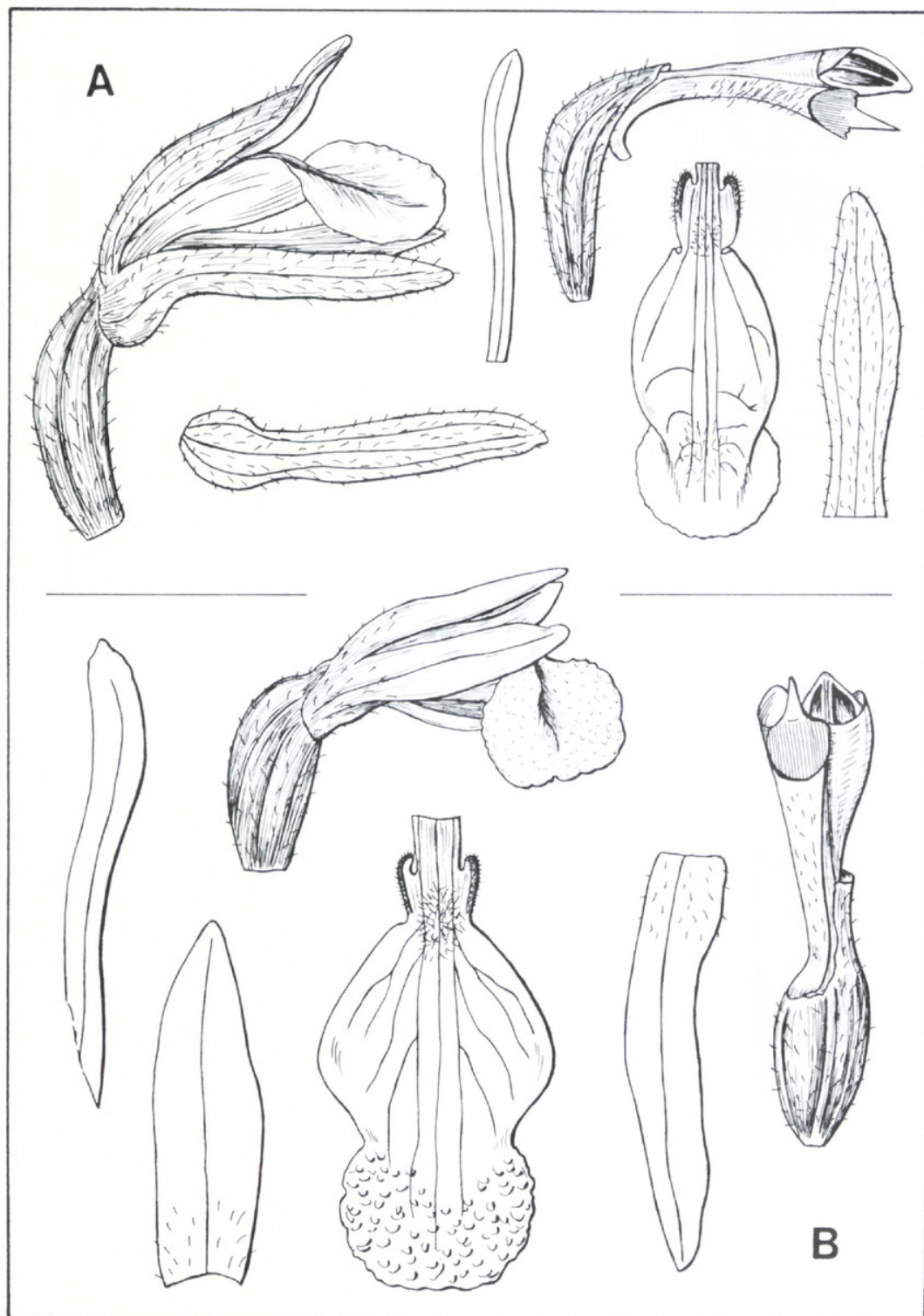


Plate 51.

A. *Schiedeella Nagelii* (L.O.Wms.) Garay. Type.

B. *Schiedeella violacea* (Rich. & Gal.) Garay

PLATE 52

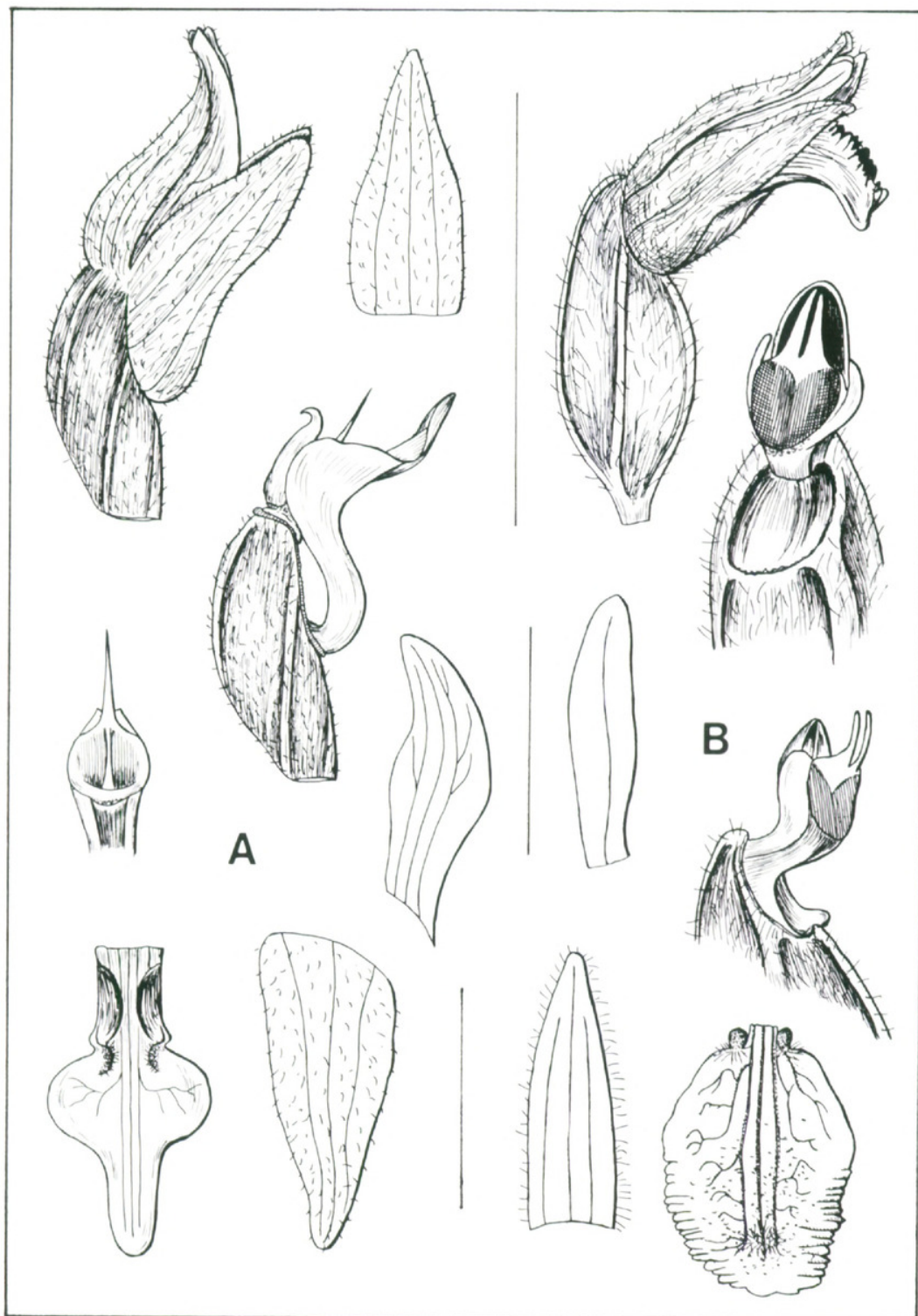


Plate 52.

A. *Skeptrostachys rupestris* (Lindl.) Garay. Type.

B. *Spiranthes spiralis* (L.) Chevall.

PLATE 53

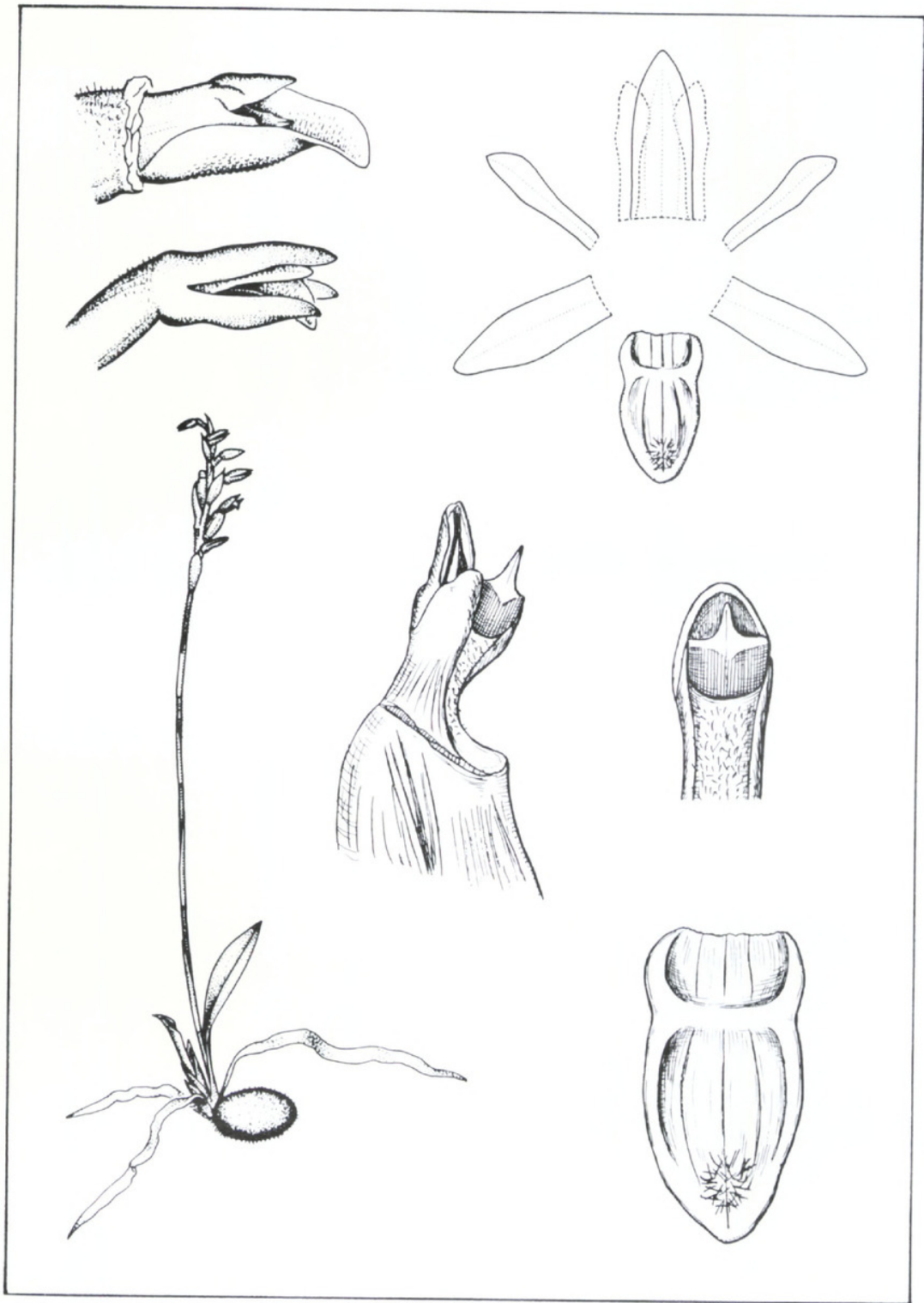


Plate 53.

Stalkya muscicola (Garay & Dunsterv.) Garay. Type.

PLATE 54

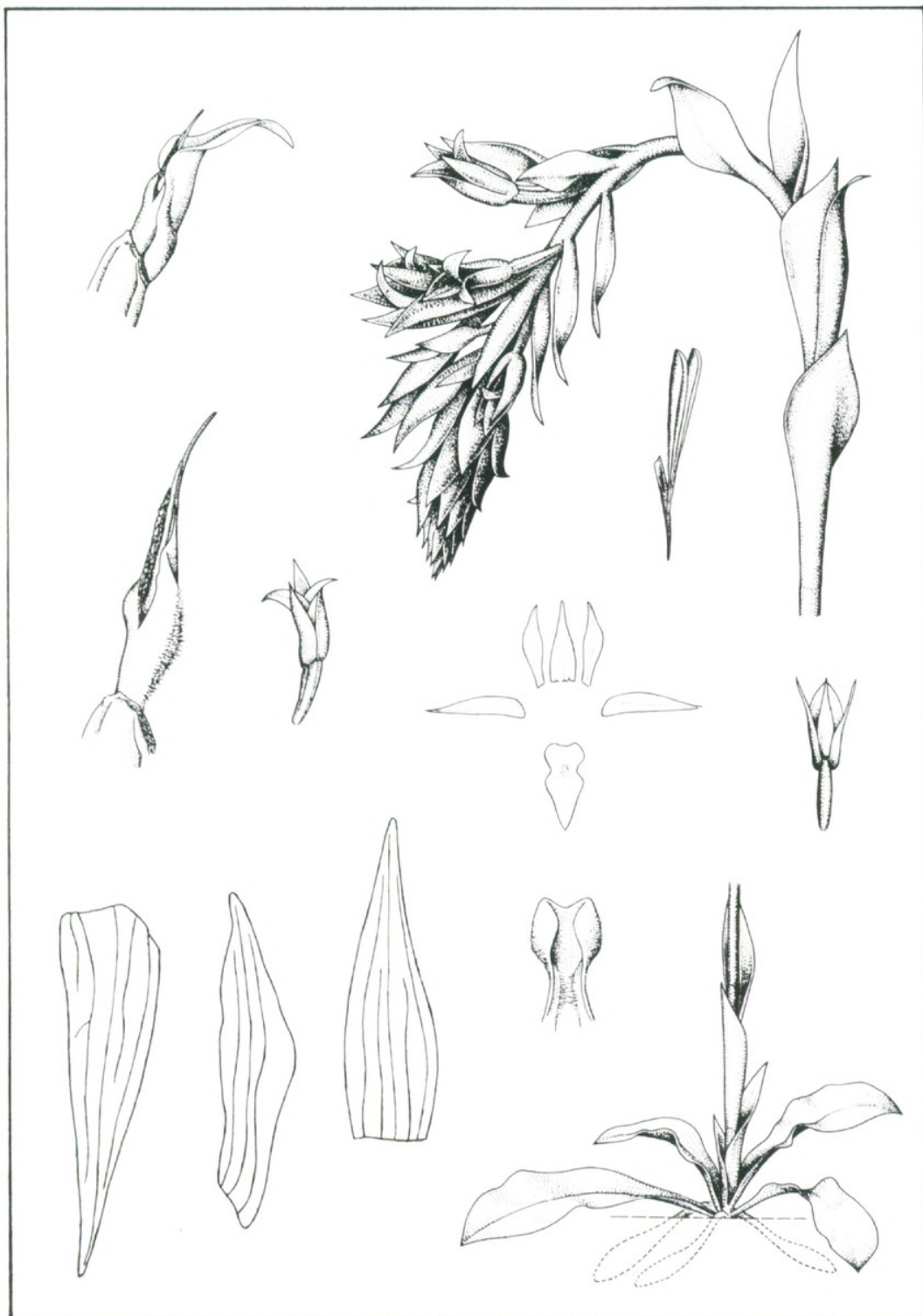


Plate 54.
Stenorrhynchos nutans Kunth & Bouché

PLATE 55

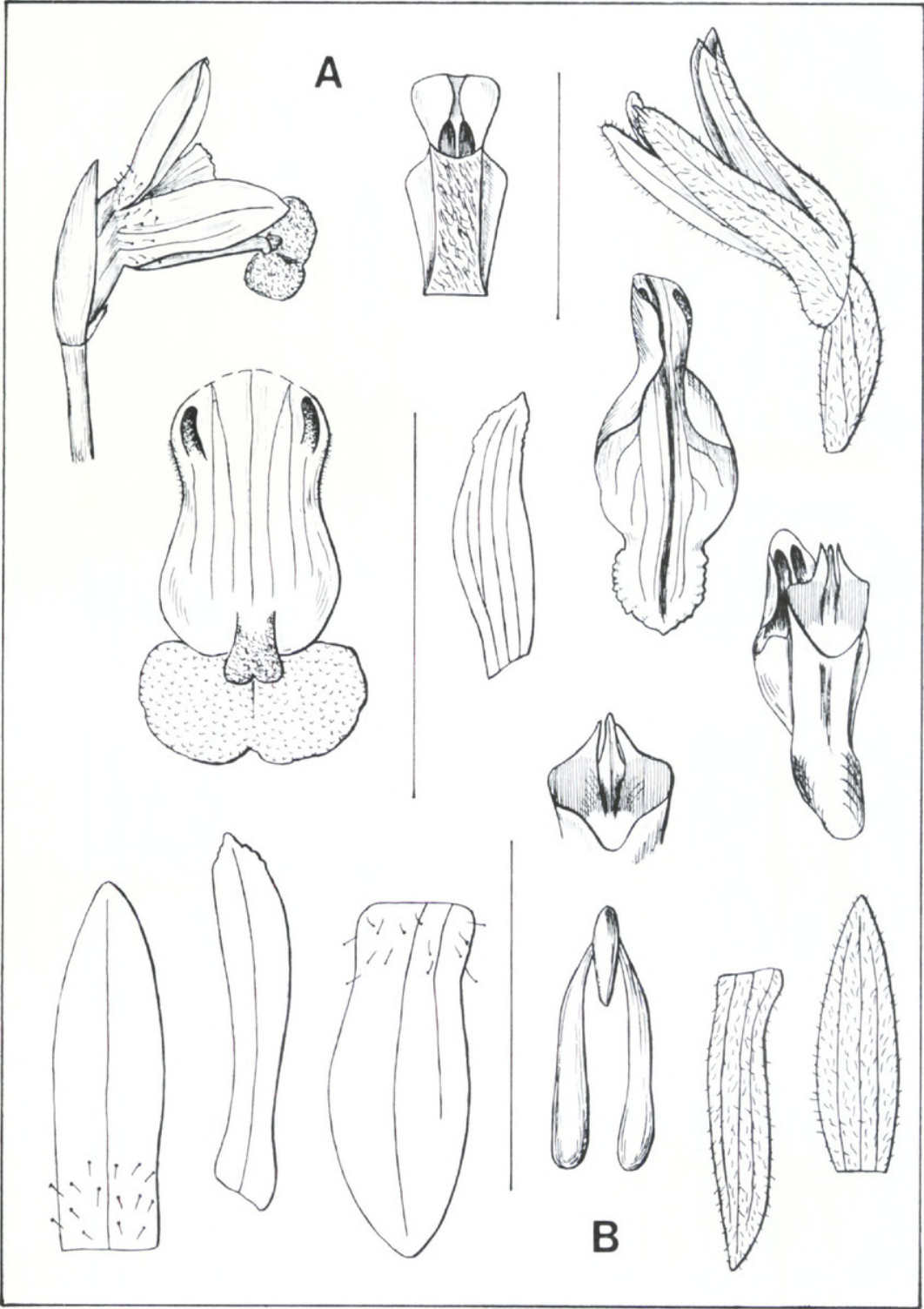


Plate 55.
A. *Stigmatosema Hatschbachii* (Pabst) Garay. Type.
B. *Thelyschista Ghillanyi* (Pabst) Garay. Type.



Garay, Leslie A. 1980. "A Generic Revision of the Spiranthinae." *Botanical Museum leaflets, Harvard University* 28(4), 277–425.

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