

MISCELLANEOUS NOTES ON NEOTROPICAL FLORA, VII.

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As in the previous notes of this series (see PHYTOLOGIA 29(5): 369, 1975), these are descriptions of new taxa in the Compositae, preliminary to the publication of forthcoming monographs in preparation. The basic work for these notes has been partially sponsored by the National Science Foundation (Grant GB. 32086).

DIPLOSTEPHIUM JARAMILLOI Cuatr. sp. nov.

Frutex ad 3 m altus ramis terminalibus robustis tortuosis congeste foliosis dense crasseque ochraceo-lanato-tomentosis, pilis crassiusculis inaequaliter furcatis plerumque 1 mm longis valde intricatis spisse obtectis.

Folia alterna crasse coriacea valde rigida petiolata. Petiolus valde robustus subteres adaxiale sulcatus, basi paulo dilatatus amplexans dense lanato-tomentosus, 10-20 mm longus. Lamina elliptica vel ovato-elliptica basi rotundata vel subtruncata, apice rotundata vel levissime emmarginata, margine anguste revoluta, 3-9 cm longa 2.5-6.5 cm lata; supra valde juvenilis ochroleuco-tomentosa, adulta glabra luteo-viridis semiopaca levissime rugulosa costa impressa reliquis nervis fere obsoletis; subtus dense crassissimeque ochraceo-tomentoso-lanata, costa validissima notata nervis secundariis 8-10 utroque latere conspicuis, patulo ascendentibus prope marginem arcuatis anastomosantibus infra indumentum valde prominentibus, nervis tertiis et minoribus etiam prominentibus reticulum amplum elevatum et alterum minutum bene prominulum cum indumentum velatum formantibus. Lamina foliorum in caulibus juvenilibus usque ad 15 x 10.5 cm lata, petiolo ad 30 cm longo.

Inflorescentiae paniculatae parvae terminales folia suprema breviores, axi et ramis brevibus robustis spisse crasseque lanato-tomentosis ochraceis capitula (8-24) breviter pedicellata vel subsessilia valde congesta ferentibus, pedicellis 0.1-0.8 mm, bracteis subtendentibus linearibus crasse denseque lanatis 8-15 mm longis.

Capitula cylindraco-campanulata 9-11 mm alta, 6-8 mm diametentia, breviter radiata, 59-91 flores ferentia. Involucrum 6-8 mm altum, dense ochraceo-lanatum phyllariis paleaceis firmis imbricatis 6-7 seriatis. Phyllaria interiora 6.5-7 mm longa 0.8-1 mm lata, linearia sursum gradatim angustata acuta, subapicem breviter lanuginosa, subinteriora 6-6.5 mm longa 1.5 mm lata oblonga basi paulo angustata apice attenuata acutaque dorso sursum

lanuginosa, exteriora proximalia ovata vel ovato-oblonga acuta paleaceo-subcoriacea basi incrassata, rigida 3-4.5 x 2 mm, dense lanata, cetera forma magnitudine gradatim intermedia.

Receptaculum leviter convexum, marginibus foveolorum fimbrilliferum, laciniis membranaceis tenuibus subulatis acutissimis 0.5-1(-1.6) mm longis.

Flores radii feminei breviter ligulati 20-30 in capitulo. Corolla alba, 4-5.2 mm longa crassiuscula tubo 2-2.5 mm longo subglabro sursum parvis pilis tenuissimis antrorsis ad 1 mm longis; lamina elliptico-oblonga 2-2.8 mm longa 0.8-0.9 mm lata apice subtruncata minute acuteque 3-denticulata basi adaxiale acute clausa, nervis 5 abaxiale plus minusve conspicuis. Stylus 4.6-5.6 mm longus plerumque corollam excedens sed interdum aequilongus, ramis lineari-subulatis 0.6-0.8 mm longis. Ovarium fertile obovoideum circa 1.5 mm longum 5-nervatum triquetrum vel adpressum. Achaenia elliptico-ovoidea plus minusve conspicue 3-5-costata circa 2.5 mm longa 1.2-1.3 mm lata glabra vel sparsissimis pilis geminis bidentatis et raris glandulis. Pappus stramineus 4.5-5 mm longus, setis rigidulis biseriatis basi coalitis interioribus sursum leviter dilatatis, exterioribus inaequalibus brevioribus 4-2.5 mm strictis acutis, omnibus minute strigulosis.

Flores disci pseudohermaphroditi 33-61 in capitulo. Corolla badia 4.8-5 mm longa, tubo 2.5-2.8 mm crassiusculo inferne albicanti superne purpurascenti sursum sicut basim limbi pilis tenuissimis antrorsis ad 1 mm longis, limbo tubuloso-campanulato lobis oblongo-triangularibus acutis, 1-1.2 mm longis, apice marginibusque papillois interdum dorso parvis pilis tenuibus. Antherae 1.8-2.2 mm longae basi acute breviterque sagittatae apice appendice ovato-oblonga acutiuscula. Stylus basi incrassatus cum disco articulatus apice bifurcatus ramis 1 mm longis lineari-subulatis extus dense antrorso-papilloso-hispidulis. Ovarium sterile vacuum lineare 5-costatum, 4-4.8 mm longum sparsis vel raris pilis geminis inaequaliter bidentatis antrorsis et sparsis glandulis brevibus capitato-pediculatis. Pappus stramineus 4.5-5.2 mm longus setis robustis biseriatis, basi coalitis, minute strigulosis interioribus sursum bene dilatatis apice obtusis vel subacutis, exterioribus parvis brevioribus strictis acutis.

Typus: Colombia, Boyacá: Cerro Berlín, between Arcabuco and La Palma (borderline between Boyacá and Santander), in degraded Andean forest, 2900 m alt, frutex 1.5-3 m alt, leaves coriaceous, thick, yellowish green dull above, ochraceous below, inflorescences and involucre ochraceous, ligules white, disc corollas brownish, 28 March 1973 J. Cuatrecasas, H. Garcia-Barriga & R. Jaramillo 28667; holotypus, US; isotypus, COL. Id. al N de Arcabuco linea divisoria entre Boyacá y Santander, 2000-2825 m, arbusto 2.5 m, lígulas blancas, flósculos carmelitos, envés hojas amarillentas, haz verde claro, hojas grandes en tallos jóvenes, 7 Mayo 1972, Garcia-Barriga & Jaramillo 20262; paratypi, COL, US.

Diplostephium jaramilloi is closely related to *D. huertasii*, from which it is readily distinguished by its usually larger,

much thicker and compact leaves, ochraceous indumentum on branchlets and leaves beneath. It also has larger heads (with 60-90 flowers), densely tomentose involucre with acute phyllaries, and longer ray flowers with ligules usually 2-2.8 mm long, surpassing a little the inner phyllaries.

DIPLOSTEPHIUM TOVARI Cuatr. sp. nov.

Frutex parvus valde ramosus ad 0.5 m altus; ramis brunneis rugosis tuberculato-cicatricosis, ramulis dense foliosis aspectu ericoideo, hornotinis terminatione leviter albo-araneosis mox glabratis et densissime granulato-glandulosis et glutinosis.

Folia alterna coriacea sessilia. Lamina stricte linearis, acicularis, sursum attenuata acutataque, basi paulo dilatata amplectenti et incrassata, margine plicato-revolutissima, 5-10 mm longa 1-1.3 mm lata; supra viridis laevis plana margine plicatura angulata, tantum in valde juvenilis parce albo-araneosa mox glabra et glanduloso-glutinosa nitidaque, subtus albo-lanuginosa sed indumentum cum plicatura marginum fere omnino tectum tantum angusta linea abaxiale mediali impressa albo-lanata vix conspicua.

Capitula solitaria ad terminationem ramulorum dense foliosorum 2-5 cm longitudine sessilia; circa 10 mm longa, pseudo-discoidea 27-34 flores ferentia. Involucrum cylindraceum (in sicco turbinatum) 8-8.5 mm altum, 5 mm diametro. Phyllaria straminea 4-5-seriata subglabra et glandulosa marginibus parvis brevibus pilis, exteriora supra basim leviter albo-villosa; interiora scariosa linearia acuta 7.5-7.8 x 1.1-1.3 mm, subinteriora oblonga acuta basim versus ampliata 7 x 2 mm, exteriora magis triangulato-oblonga et magis induratis 7-6.8 x 2.2 mm. Receptaculum 2 mm diam alveolatum marginibus dentatis plus minusve fimbriatis.

Flores radii feminei 11-15 in capitulo, quam involucrum breviores. Corolla albida 3.7-4 mm longa tubularis sed ad apicem oblique truncata labio abaxiali sublaminari brevi 0.6-1 mm longo, basi acute clauso apice acute 3-dentato instructa, deorsum glabra sursum minute antrorse papilloso-pilosula. Stylus 5.4-5.8 mm ramis 1 mm, corollam valde excedens. Ovarium fertile 1.8-2.3 mm ellipsoideum compressum, saepe 3(-4) nervis conspicuis, copiose antrorso-pilosum et praecipue sursum sparse glandulosum. Pappus circa 5 mm longus stramineus setis strictis acutis minute strigulosis valde inaequalibus exterioribus brevioribus circa 1.5 mm longis.

Flores disci 16-19 in capitulo. Corolla 6.5 mm longa glabra, tubo 1.8 mm, limbo tubuloso, lobis triangularibus 0.9-1 mm longis margine incrassato ad apicem papillosulo, dorso sursum copiosis glandulis minutis sessilibus munitis. Antherae 2.3 mm longis appendice oblonga acutiuscula. Stylus 7-7.4 mm, ramis 1.6-1.7 mm lanceolato-subulatis. Ovarium sterile lineare circa 2 mm longum 5 costis plus minusve conspicuis, copiosis minutis glandulis praecipue sursum et sparsis pilis teneris praecipue deorsum munitum. Pappus stramineus 5.5 mm longus, setis interioribus sursum levissime dilatatis acutis, exterioribus circa

1 mm longis complanatis squamosis eroso-laciniatis.

Typus: Peru, Ayacucho prov. Lucanas: Pampa Galeras, entre Nazca y Lucanas, 4100 m alt, habitat algo rocoso con estepa de gramíneas, flores amarillas, 23-X-1969, Oscar Tovar 6274; holotypus, US. Id. entre Nazca y Puquio, puna, lugares pedregosos, 4100 m alt, arbusto 0.5 m alto, flores amarillas, 2-XII-1970 Oscar Tovar 6795, paratypus (US).

Diplostephium tovari belongs to the series *Lavandulifolium* Blake. It is closely related to *D. gnidioides* Blake, especially on account of its habit and plicate-revolute leaves. The new species differs from it and from other more or less related taxa by the glabrous and glandular-glutinous branchlets, by the shiny-glutinous, glabrous and smooth adaxial side of the leaves and by the almost glabrous involucre which phyllaries are almost equal in length. However, the most outstanding characteristic of *D. tovari*, unique in the series *Lavandulifolium*, lies in the ray flowers which corollas are much shorter than the style, the pappus and the involucre; they are tubular, only the upper part being open adaxially making like a short inrolled abaxial lamina 0.6-1 mm long.

DIPLOSTEPHIUM GLUTINOSUM Bl. ssp. *COCUYANUM* Cuatr. ssp. nov.

Frutex parvus laxe vel dense ramosus, ad 20 cm altus, ramulis terminalibus copiose foliatis glabris dense glandulosis glutinosisque.

Folia alterna coriacea sessilia vel subsessilia oblonge oblanceolata apice subite attenuato subacuto, deorsum sine sensum longe attenuata supra basim bene angustata, basi callosocrassata anguste vaginata, margine integra revoluta, 8-20 mm longa, 1-2.5(-3) mm lata, supra viridia glabra, conspicue punctato-glandulosa viscosaque, subtus costa elevata glabrata excepta dense crasseque albo-lanata.

Capitula radiata, 23-48 flores ferentia circa 10 mm alta solitaria pedunculata, pedunculo erecto primum laxe lanuginoso deinde glabro sed dense glanduloso, 20-50 cm longo folia suprema valde excedentia. Involucrum subcampanulatum phyllariis 5 seriatis lineari-lanceolatis densiuscule minuteque granulato-glandulosis et laxe lanuginosis, interioribus 8.5-10 x 1-1.2 mm acutis, subinterioribus 8-9 x 1.2-1.8 mm, ceteris gradatim brevioribus externis 4-2 x 1.2-1.5 mm ovato-oblongis acutis. Circulo ligularum 15-16 mm diametro.

Flores radii ligulati 12-19 in capitulo; corolla alba circa 11 mm longa tubo 3.5-4 mm longo sursum pilosulo, lamina oblonga 1.2-2.2 mm lata; ovarium circa 2 mm longum copiose antrorso-setosum; pappus 5-6 mm setis strictis acutis exterioribus inaequalibus brevioribus.

Flores disci 11-29 in capitulo; corolla 5.5-6 mm longa tubo 2-2.5 mm, glabro vel extremo parce pilosulo, limbo tubuloso deorsum paulo pilosulo, lobis oblongo-triangularibus 1 mm longis subapicem parvis pilis brevissimis; anthera 1.8 mm, appendice apicali oblonga acuta 0.45 mm longa; stylus 5 mm ramis

1.2 mm lineari-subulatis extus papilloso-strigosis; ovarium 2.5-3 mm lineare basi annulato-callosum, 5 nervis vel costis conspicuis, densiuscule antrorso-pilosum, vacuum sterile; pappus 5-6.5 mm longus setis interioribus sursum leviter ampliatis apice attenuatis acutatis, exterioribus inaequalibus brevioribus.

Typus: Colombia, Boyacá: Páramo de Pisba, carretera Socha-La Punta, loma El Bizcocho, 2 km al SW de Laguna Batanera, 3750 m, rocas de arenisca muy expuestas al viento, arbustillo, lígulas amarillentas, 13-VI-1972, Antoine Cleef 4487; holotypus US; isotypi, COL, U. Sierra Nevada del Cocuy, Quebrada El Playón, Hoya San José, camino Finca El Playón Alto de Cusirí, 4000 m, páramo húmedo, pedregoso, arbustillo pegajoso, hojas verde oscuras, lígulas blancas, común, 14-III-1973, Antoine Cleef 9195; paratypi US, COL, U.

D. glutinosum ssp. *cocuyanum* differs from the typical *D. glutinosum* in that the leaves are slender, long-attenuate and narrower pseudopetiolate towards the base, the margin being more revolute and the upper surface conspicuously depressed-punctuate, whereas in the other forms of the species the punctuation is completely obsolete or only rarely present. The peduncles are, furthermore, densely glandular lacking the whitish lanuginose covering exhibited by the type of the species.

DIPLOSTEPHIUM JUAJIBIOI Cuatr. ssp. *LEUCOPAPPUM* Cuatr. ssp. nov.

Frutex ramis terminalibus copiose foliosis leviter striatis dense ochroleuco-lanatis.

Folia chartacea sessilia obovato-oblonga vel subobovato-oblonga basim versus longe attenuata, apice subite attenuata et acute mucronulata, margine leviter revoluta integra vel sursum parvis dentibus callosis spinulosis minutis munita, 20-46 mm longa 6-12 mm lata, supra viridia glabra subtus in sicco ochroleuca dense adpresseque lanata costa prominenti conspicua, nervis secundariis 5-6 utroque latere in angulo acuto ascendentibus plerumque obsoletis.

Inflorescentiae terminales paniculatae folia excedentes usque ad 5 cm longae lataeque, e basi ramosae ramis pedicellis brevisseque lanuginosis. Pedicelli erecti teneri nudi vel 1-2 bracteolis, 8-15 mm longi. Capitula radiata 72-100 flores ferentia, cupulari-campanulata 7-8.5 mm alta 6-7.5 mm diametentia, circulo ligularum 10-13 mm diametro. Phyllaria 5-seriata imbricata dorso lanuginosa margine extremo brunnescente marginata, interiora oblonga acuta 5-5.5 x 1 mm exteriora gradatim breviora latioraque. Receptaculum 2-3 mm diam, leviter convexum.

Flores radii 14-22; corolla alba 6 mm longa tubo stricto 2.8 mm, sursum papilloso-pilosulo, lamina oblongo-elliptica 0.9-1 mm lata; ovarium fertile ovoideum plus minusve compressum copiose antrorso-pilosum et sparse glandulosum; pappus pallide stramineus 4-4.5 mm, pilis strictis acutis.

Flores disci 54-78; corolla 4.2-4.5 mm, tubo 2 mm sursum sicut limbo inferne papilloso-piloso, lobis oblongis 1.5-1.7 mm

longis extus apice parvis glandulis globosis interdum parvissimis pilis minutis; ovarium sterile lineari antrorso-pilosum et parce glandulosum; pappus pallide stramineus 4 mm longus pilis sursum paulo dilatatis.

Typus: Colombia, Cundinamarca: Páramo de Sumapaz, Hoya de la Quebrada Sitiales, 3530 m, orilla de la quebrada, 500 m al W de la Laguna La Primavera, arbusto 4 m, lígulas liláceas, disco marrón, 9-I-1973 Antoine Cleef 7584; holotypus, US; isotypi, COL, U. Hoya de El Nevado, orilla SE de la Laguna del Nevado, 3535 m, mancha de bosque alto-andino húmedo con Escallonia y compuestas predominantes; arbusto 2 m, ligulas liláceas disco marrón-morado, 17-I-1973, Antoine Cleef 8017; paratypi, US, COL, U.

This subspecies, confined in the Páramo de Sumapaz, differs from the typical *D. juajibioi* mainly by the pale stramineous pappuses, by the smaller heads with shorter flowers, by the paler involucre, and by the larger inflorescences with longer pedicels.

BACCHARIS BOLIVIENSIS (Wedd.) Cuatr. comb. nov.

Heterothalamus boliviensis Wedd. Chl. And. 1:179, t. 31A. (Type: d'Orbigny 1389 et 1345 environs de La Paz).

Baccharis heterothalmoides Britton, Bull. Torr. Bot. Club 19:4. 1892. (Type: Rusby 1698, near La Paz 10.000 ft. Bolivia).

Pseudobaccharis boliviensis (Wedd.) Cabrera, Not. Mus. La Plata 9, Bot. 46:249. 1944.

During the process of identification of a series of specimens, I saw the necessity of transferring this species to the genus *Baccharis*, to which it belongs and, therefore, to propose this new combination. *B. boliviensis* is widely distributed in the Southern Andes, from Peru (Cuzco) across Bolivia to Chile and Argentina.

SENECIO CLEEFII Cuatr. sp. nov.

Frutex parvus usque ad 25 cm altus saepe satis ramosus. Rami plerumque prostrati radicales vel reptantes, vetusti cum vaginis foliorum parce barbulatis imbricatis persistentibus obtecti vel denique denudati suberoso-corticati cicatricoso-tuberculati glabrique. Ramuli terminales ascendentes vel erecti 5-15 cm longi spisse foliati foliis crebris patulis vel subpatulis basis vaginantibus imbricatis valde adpressis tegentibusque instructi.

Folia parva coriacea crassiuscula sessilia. Lamina 4-8 x 1.7-3 mm, anguste elliptica apice attenuata subacuta vel subobtusata basi leviter contracta et in vaginam amplexantem paulo dilatatam producta, margine integerrima utrinque viridis enervia glabraque. Vagina membranacea deorsum ampliata basi incrassata 1.5-2 x 1.7-2 mm, abaxiale glabra viridis marginibus longe crispo-pilosa seu lanuginosa, adaxiale superficie glabra sed basi longe lanugineo-barbata barbis crispis antrorsis inter vaginam et caulem adpressis.

Inflorescentia ad apicem ramulorum dense foliatum, capitulis 3-6 (interdum tantum 2-1) breviter pedicellatis congeste corymboide vel umbellate dispositis. Pedicelli 1-7 mm longi angulati bracteolati extremo conico-dilatato cum bracteolis ad modum calyculi instructo.

Capitula discoidea cylindracea basi turbinata, 8-9 mm alta 6-7 mm diametientia, 31-54 flores ferentia. Calyculus 4-6 bracteolis viridibus membranaceis, lineari-triangularibus acutis marginibus ciliatis pilis tenuibus flexuosis deorsum longioribus intricatisque, basi lanuginosis. Involucrum viride tubulosum 6-7 mm altum. Phyllaria 9-12(8-13) crassiuscule herbacea rigidula 6-6.5 mm longa, externa 1.3-1.8 mm lata oblongo-attenuata subacuminata acuta vel subacuta, apice papilloso-ciliato reliqua glabra, interiora 2.5-2.8(-3) mm lata, elliptico-oblonga vel elliptica apice plus minusve attenuata subacutata, marginibus late scariosis sursum lacerato-ciliolatis apice bene papilloso, cetera glabra. Receptaculum planum pentagonale areolatum glabrum 2-2.8 mm diametro.

Flores omnes hermaphroditi. Corolla flava glabra 4.2-5 mm longa tubo 1.6-2 mm longo stricto basi subite cupulato-dilatato, limbo tubuloso sursum levissime gradatim ampliato, lobis oblongis 0.6-0.9 mm longis oblongis attenuatis apice incurvo acuto papilloso-ciliolatoque. Antherae 1.5-1.6 mm longae basi sagittatae breviterque caudatae caudiculis tenuissimis, appendice apicali oblonga obtusiuscula membranacea circa 0.3 mm longa. Filamenta glabra infra antheram subite incrassata. Stylus 5-6 mm longus basi bulbosa semiglobosa, ramis 1 mm longis paulo complanatis apice truncato minuteque papilloso, adaxiale lineis stigmaticis duobus crassis satis contiguis, abaxiale circa apicem parce papilloso. Ovaria oblonga 2-2.8 mm longa paulo compressa 10-striata saepe 5 nervis magis notatis. Achaenia glaberrima oblonga 2-2.8 mm longa 0.6-0.7 mm crassa saepe pentagona cum striis intermediis plus minusve prominulis, basi leviter attenuata obtusiuscula crassiuscule callosa. Pappus albus, 5-5.5 mm longus, pilis crebris biseriatis scabridis cellulis acutis ad apicem obtusis.

Typus: Colombia, Boyacá: Sierra Nevada del Cocuy, Alto Valle de Lagunillas, subida al Boquerón de Cusirí, superpáramo en pedregal al cauce de un chorrito, asociado con *Racomitrium*, 4300 m alt, arbusto prostrado, capítulos pálido-amarillos, 5 Mar 1973, Antoine M. Cleef 8826; holotypus, US; isotypus U. Id. Boqueron de Cusirí, 4315 m, superpáramo pedregoso, vegetación seca con *Lúzula* sp, *Agrostis haenkeana*, *Espeletia* sp. y *Bartramiaceae*, 5 Mar 1973, A.M. Cleef 8803 (U); id, 4320 m, arbusto pequeño prostrado, capítulos palido-amarillos, muy abundante, 5 Mar 1973, A.M. Cleef 8787A (U). Arauca: Sierra Nevada del Cocuy, Cabeceras de la quebrada El Playón, Patio Bolos, lajas del superpáramo, 4340 m alt, arbustico tallo poco erecto, capítulos pálido-amarillos, 9 Mar 1973, A.M. Cleef 8953 (paratypi, US, U). Id. 4300 m, superpáramo, arbusto pequeño prostrado, hojas oscuro-verdosas algo coriáceas, capítulos pálido-amarillos, en grietas de rocas, 10 Mar 1973, A.M. Cleef

9055 (U); id, 4340 m, lajas de superpáramo, prostrado, capitulos pálido-amarillos, vegetación seca con Niphogeton sp, Draba sp, Carex sp y Stephamella sp, 9 Mar 1973, Cleef 8944A (U); id. 4350 m, al pie de unas rocas cerca del Alto, 4350 m, superpáramo, arbusto prostrado, capitulos pálido-amarillos, 1 Oct 1972, A.M. Cleef & Florschütz 5747 (U).

Senecio cleefii belongs to the section *Microchaete* (Benth.) Hoffm., and is easily distinguished from the other species of the section by its usually prostrate rooting habit and the shape of its small thick-coriaceous, oblong and glabrous leaf-blades which are crowded and rather spreading, covering the terminal branchlets. *S. cleefii* is an important endemic element of the scattered superpáramo vegetation, growing among rocks and in sandy ground, where it builds green patches often dotted with its light yellow flowering heads.

SENECIO CACAOSSENSIS Cuatr. sp. nov.

Frutex erectus ramosus ramis ramulisque subhirsutulis pilis copiosis pluricellularibus ramosis saepe longe furcatis vel dendroideis 1-2 mm longis acutis rigidulis subpatulis vel ascendentibus. Ramuli terminales densiuscule foliosi foliis patuli-ascendentibus cum vagina adpresse amplexentis basi incrassata persistentique denique decidua; rami vetusti denudati cicatricoso-tuberculati striolati pubescentes vel glabrati.

Folia breviter chartacea griseo-viridi revoluti-marginata rigida, fragilia, sessilia. Lamina oblonga 10-15 mm longa margine revolutissima 2.5-3 mm lata, sed expansa 4-5.2 mm lata, apice obtusiuscula subite callosa-mucronata basi rotundata, adaxiale juvenilis densiuscule substrigosa pilis subadpressis 1.5 mm longis deinde dilute vel sparse subflexuoso-pilosa, viridis sublaevis tantum costa impressa notata, abaxiale copiose substrigosa pilis plerumque furcatis robustiusculis rigidulis levissime flexuosis acutis subparallelis, 1.5-2 mm longis tecta costa crassa tantum conspicua basi in vaginam amplexentem moderate dilatata. Vagina crassa adaxiale glabra basi longe barbata excepta, barbis densis 1.5-2 mm longis inter folia et caulem emergentibus.

Capitula pedicellata in paniculis terminalibus corymbiformibus brevibus basi foliatis instructa. Ramuli pedicellique copiose subhirsutuli pilis ascendentibus vel subpatulis rigidulis acutis vestiti. Pedicelli 3-5(-10) mm longi sursum 1-2 bracteolis praediti ad apicem incrassati parvis bracteolis ad modum calyculi instructi. Bractee subtendentes foliaceae, folia similinae virides, 3-4 mm longae.

Capitula discoidea tubuloso-campanulata lutescenti-viridia 6-8 mm longa 4-5.5 mm lata 20-28 flores ferentia. Involucrum 6-6.5 mm altum. Phyllaria rigidula herbacea viridula 5.5-6 mm longa, exteriora linearia acutata crassiuscula 1.3-1.5 mm lata interiora oblonga subacuta margine late membranacea 1.6-1.8 mm lata ad apicem omnia longe piloso-papillosa, abaxiale copiose vel dilute pubescenti-hirsutula. Receptaculum leviter convexum

leviter alveolatum glabrum 1.5 mm diametro. Calyculus 1-3 bracteolis viridulis lineari-acuminatis acutisque parce puberulis 2-3.5 x 0.6-0.8 mm.

Flores omnes hermaphroditi. Corolla flava, glabra 4.5-5 mm longa, tubo 2-2.3 mm longo, angusto, limbo anguste infundibuliformi, lobis triangulari-oblongis, 0.7-0.9 mm longis apice acuto incurvo dense papilloso. Antherae 1.3-1.4 mm longae appendice apicali membranacea oblonga obtusiuscula 0.25-0.3 mm longa, basi caudiculato-sagittatae caudiculis tenuissimis 0.2-0.25 mm longis. Stylus 5.5-6 mm, basi subrotundato-bulbosus, ramis circa 1 mm apice truncato longe papilloso-coronato. Ovarium 1.8-1.9 mm longum oblongum basi callosa subpentagonum, 5 nervis intermediis plus minusve notatis. Pappus albissimus 4-4.5 mm longus, pilis biseriatis strigulosis ad extremum apiceque dilatatis cellulis obtusissimis.

Typus: Colombia, Boyacá: Páramo de Pisba, carretera de Socha-La Punta, Cacaos, km 77, subpáramo 3430 m, vallecito pantanoso con Espeletia lopezii (hoja ancha) y Sphagnum al E de la Laguna Colorada, arbusto 2 m, flósculos blancos, 20-VI-1972, Antoine Cleef 4776; holotypus US, isotypi COL, U.

Senecio cacaosensis belongs to the section *Ledifolium* Cuatr., being closely related to *S. ledifolius* (HBK) DC. From this species it differs by the strongly margin-revolute leaves, obtuse at both ends with an indumentum of thick, acute rather loose hairs at the abaxial side. The leaves of *S. ledifolius* are cinereous sericeous or almost sericeous beneath with thin, adpressed or subadpressed hairs. *S. cacaosensis* is also distinguished by the same kind of vestiture of robust, longer and spreading trichomes on branchlets and pedicels. Furthermore, the new species differs by the scarce pubescence of the involucre and the obtuse tip-cells of the pappus hairs.

ESPELETIA LOPEZII Cuatr. var. MAJOR Cuatr. var. nov.

Caulirosula vulgo 1-3 m alta trunco lignoso simplice 10 cm diametro cum foliis marcescentibus spisse crasseque tecto. Rosula foliorum inflorescentiaequae visu cinereo-lutescentes.

Folia coriacea flexibilia cum indumento molle valde crasso, albido-cinereo vel flavesciente lanato tecta, (30-)36-46 cm longa (vagina excepta). Lamina (25-)30-38 cm longa (8-)9-11 cm lata, late oblonga vel subovato-oblonga vel oblongo-ovalis apice attenuata subobtusa interdum subacuta, basi plus minusve subite contracta et gradatim in speudopetiolum angustata, utrinque dense crasseque crispo-lanata insuper saepe ad costam longe villosa-barbata, tactu mollissima, margine visu laevi, adaxiale aspectu laevis abaxiale nervis levissime vel haud notatis, sed infra indumentum costa crassa elevata striataque, nervis secundariis prominentibus inaequaliter 6-10(-15) mm intersese distantibus in angulo 50-60° ascendentibus, nervis tertiis transversis et minoribus prominentibus in reticulum minutum elevatum anastomosatis, margine laminae argute revoluta. Pseudopetiolus (4-)5-10 cm longus robustus crasse lanatus infra lanam

costulato-striatus et anguste deorsum angustissime marginatus basi robustissima triangulato-ampliata densissime crasse longeque lanato-barbata. Vagina coriacea plana multi-parallelinervata (8-)9-12 cm longa (7-)8-10.5 cm lata adaxiale glabra abaxiale dense longeque aureo vel fulvo-barbata, pilis ad 20 mm longis, inter folia adjacentia valde compressis.

Inflorescentiae axillares 10-30 in rosula, foliis sesqui vel duplo longiores. Axis simplex crassus erectus aphyllus crasse denseque flavescenti-lanatus, 50-85 cm longus, basi (8-12 cm longitudine) robustiori inter vaginas foliorum occulta longe villosa-barbata pilis ad 20 mm, apice in cymam simplicem basi bibracteata 3-capituliferam productus, sed saepe capitulo uno additionale minore breviter pedicellato infra terminalem instructo. Pedicelli crassi et dense crasseque flavo-lanati 5-22 cm longi saepe medialis longior, pedicello additionali 2-4(-7) cm longo. Bractee subtendentes decussatae 5-12 x 1.5-4 cm, oblongae vel ovato-oblongae obtusiusculae basim dilatatae amplectentes, subcoriaceae dense crasseque flavo-lanatae. Capitula cernua visu globosa 4.5-5(-6) cm lata crasse flavo-lanata.

Capitula ampla aspectu globosa cernua, 4.5-5(-6) cm diam 338-594 flores ferentia circulo ligularum 50-60 mm, disco 25-30 mm diametro. Involucrum cyathiforme dense crasseque flavo-lanatum. Phyllaria 9-15, exteriora 7-9 crasse herbacea ovato vel oblongo-ovata ad apicem attenuata obtusa vel subobtusa vel acutiuscula 37-20 x 20-10 mm, adaxiale apice excepto glabra plurinervata, abaxiale densissime lanato-barbata, barbis ad 10 mm longis, interiora (6-4) tenuiora magis oblonga plana, 22-20 x 17-8 mm. Phyllaria fertilia herbaceo-chartacea rigida 27-18 x 10-5 mm ovali-oblonga vel late oblonga subplana apice obtusiuscula vel acutata, multinervata, abaxiale sursum longe lanata barbis circa 3 mm longis, basi glabrescentia, interiora gradatim breviora deorsum magis glabratis, 18-16 x 4-2.5 mm, plana vel plus minusve complicata subnavicularia subamplectentia, notate 7-9-nervata apice acutata barbulataque, pilis acutis 0.1-0.3(-0.4) mm plus glandulis interspersis. Receptaculum 19-20(-22) mm diametro, planum ad centrum leviter convexum, glabrum. Paleae 12-17 x 2.5-4 mm ovali-oblongae obtusae vel subobtusae rigide membranaceae subhyalinae tenuiter plurinervatae sed 7 nervis magis notatis costato-subcarinatae plicato-amplectentes et curvatae naviculares subapice dorso barbulatae pilis flexuosis acutis 0.5-1 mm longis et glandulis minutis capitatis parvis vel copiosis interspersis.

Flores radii feminei 4-6-seriati, (80-)110-144 in capitulo. Corolla lutea 20-27 mm longa, tubo stricto 6-9 mm longo copiose vel sparse minute piloso pilis crassiusculis subconicis acutiusculis vel obtusis 0.05-0.5 mm, et copiosis vel sparsis glandulis capitatis minutis 0.025-0.1 mm; lamina stricte linearis 1.5-2 mm lata (raro 3 mm) 2-3-dentata, 5-7(-9)-nervata nervis abaxiale prominulis ad duos magis prominentes 2-plicata seu saepe involuto-plicata, basi parce minute pilosula glandulosaque cetera glabra dorso sparsis vel sparsissimis glandulis subsessilibus minutis munita. Stylus 7-12 mm longus ramis lineari-subulatis 2.5-4 mm

longis. Achaenia atra oblongo-subobovato-elliptica apice emarginata, exteriora (3.8-)4-6 x 2.2-3 mm triangulata, dorso subplano, interiora magis oblonga 4-5(-6) x 1.3-1.8 mm quadrangulata dorso protrudo obtuse angulato.

Flores disci pseudohermaphroditi 274-456 in capitulo. Corolla lutea 12-15 mm longa paulo incurva levissime zygomorpha, tubulo 5-6 mm longo angusto, ad basim excepto glabro sed copiosis glandulis pediculato-capitatis minutis ad 0.1 mm longis et praecipue sursum parvis vel parcissimis pilis crassiusculis subconicis obtusis vel subacutis 0.05-0.2 mm praedito, limbo tubuloso ad basim sparsis pilis et glandulis sursum parvis vel parcissimis glandulis minutis, lobis oblongo-triangularibus paulo inaequalibus 1.2-1.8 mm longis, marginibus incrassatis papillosisque, extus sparsis vel copiosis glandulis pediculato-capitatis minutis et interdum parcissimis pilis minutis 0.05-0.1 mm longis. Antherae 3.7-4.5 mm longae appendice oblongo-ovata subacuta 0.8-0.9 mm longa. Stylus 11-14 mm longus. Nectarium tubulosum crassiusculum minute dentatum 1.1-2 mm longum.

Typus: Colombia, Boyacá: Quebrada del Curial, páramo 3350 m, at the spot La Porquera, eastern slope of the Cordillera (rio Casanare drainage), caulirosula up to 3 m, thick, felty, cream yellowish leaves, 15 Sept 1969, J. Cuatrecasas & L. Rodríguez 27791; US, holotypus; US, COL, isotypi. Other collections: Boyacá: Sierra Nevada del Cocuy, Valle del Cocuy, La Cueva, Chinchilla, 3800-3840 m, trunk 1 m high, thick, covered with marcescent leaves, center of rosette golden-sericeous, leaves thick, soft, habit white, 11-29 inflorescences in a rosette, Chromosome Number: $n = 19$, 17 Sept 1969, Cuatrecasas & Rodríguez 27826 (US, COL). Páramo de Socha (o de Pisba), 3500-3550 m, caulirosula 2-3 m alt, habit yellowish, terminal bud, young leaves and hairs of the leaf-bases deep yellow, resin hyaline, pale yellow, ligular circle 5-5.6(-6) cm, disc 2.5-2.8(-3) cm yellow becoming brownish, rays yellow, florets yellow, 5 Apr 1973, Cuatrecasas & Jaramillo 28737 (US, COL). Páramo de La Sarna above the Laguna de Tota on the way to Pajarito, 3450 m, trunk 1 m high 10 cm diam, densely and thickly covered by marcescent leaves, "frailejón", 30 Mar 1973, Cuatrecasas, Jaramillo & Cleef 28696 (US, COL).

ESPELETIA LOPEZII Cuatr. var. LOPEZII, fma. ALTICOLA Cuatr. fma. nov.

Forma a typo speciei folia breviora angustioraque indumento magis crispo denseque compresso differt. Lamina foliorum 16-24 cm longa 3.2-4.7 cm lata. Petiolus 5-8.5 cm longo, basi dilatata crassissime denseque lanato-barbata. Vagina foliorum 8-10 x 6-8 cm.

Typus: Colombia, Boyacá: Sierra Nevada del Cocuy, Páramo Cóncavo, vallecito abrigado pantanoso entre morrenas peladas del superpáramo en el límite con el páramo propiamente dicho, 4335 m alt, frailejonal, caulirrosula de 2 m, hojas verdoso-amarillentas, lígulas amarillas, 25 Febr 1973, Antoine M. Cleef 8547; holotypus US, isotypi U, COL. Other collections: Id. Páramo Cóncavo en el

filo divisorio con Valle de Las Lagunillas, 4500 m alt, vegetación de Calamagrostis effusa, Poa sp y Leptodontium sp., suelo pedregoso, caulirrósula 2 m, hojas verde grisáceas, lígulas amarillas, 30 Sept 1972, Cleef & Florschuetz 5923 (COL, U, US). Id. Cabeceras de la Quebrada El Playón, Patio Bolos, Hoya San José ca 1 km SW del Alto de Patio Bolos, 4230 m, frailejona en fondo pantanoso entre vertientes con vegetación superparamuna seca, caulirrósula 2 m, hojas verdoso-amarillentas, lígulas amarillas, 12 Mar 1973, Cleef 9101 (US). Id. Alto de Ritacuva, 4550 m, on rock slope across moraine from tongue of glacier, SW facing slope, wet, caulirosuletum with leaves reaching 2.77 m high, leaves yellow green, woolly felt-like both sides, embryonic leaves chartreuse woolly, inflorescence with light yellow hairs, rays yellow, 22 Apr 1959, Barclay & Juajibioi 7444 (US, F). Id. id. 4500 m SW-facing slope with dense Espeletia, caulirosuletum, leaves yellow green, woolly to felt-like on both surfaces with tan hairs at base, embryonic leaves woolly, yellow, 22 Apr 1959, Barclay & Juajibioi 7450 (US, COL).

ESPELETIA PLEIOCHASIA Cuatr. var. SOCOTANA Cuatr. var. nov.

Caulirosula ad 1.5 m alta, griseo-viridis, trunco 1 m alto 4 cm diametro cum foliis marcescentibus tecto.

Lamina foliorum 20-42 cm longa 4-8.5 cm lata, adulta coriacea rigidaque, saepe late oblanceolata, acuta basim versus magis angustata (1.6-0.9 cm lata), interdum brevi-subpetiolata, densiuscule tomentoso-villosa, juvenilis albicans; vetusta brunneo-viridis adaxiale asperula.

Inflorescentiae axillares quam folia longiores statu fructifero 24-60 cm longae ramis ramulisque crassiusculis, pedicellis robustiusculis (0.1)0.5-1.5(-3) cm longis.

Capitula parva 33-55 flores ferentia ligulis amotis 7-9 mm circulo ligularum 12-15 mm diametro. Phyllaria sterilia 5-6(-8), 8-3.5 x 3-1.5 mm ovata vel oblonga acuminata dorso parce pilosula marginibus ciliatis pilis ad 1 mm longis acutis et glandulis pediculatis. Phyllaria fertilia ovato-oblonga vel oblonga acuta basi attenuata et incrassata, semi-amplexentia 3-4 x 1.8-2.2 marginibus plus minusve ciliatis pilis subclavatis 0.2-0.5 mm et glandulis globosis munita. Receptaculum conicum glabrum 3-3.5 mm diametro 2.2-2.4 mm altum. Paleae obovato-oblongae vel oblongae scariosae hyalinae, 3-4.2 x 1.2-2.5 mm, amplexentes apice obtusae vel subite acutatae sursum copiosis vel sparsis glandulis et sparsis vel sparsissimis pilis crassiusculis clavatis 0.1-0.2 mm.

Flores radii (8-)10-13 in capitulo 1-2 seriati. Corolla lutea 3.5-8 mm longa tubo 0.8-1 mm dense barbato pilis crassiusculis obtusis 0.4-0.8 mm, lamina late elliptica vel suborbiculari vel elliptico-oblonga 1.7-2.8 mm lata 7-9-nervata 2-3 dentata, abaxiale sparsis glandulis subglobosis circa basim copiosis munita. Achaenia obovato-oblonga obtuse subtriangulata dorso convexo, 2-2.2 x 1.5-1.6 mm, interiora oblonga subquadrangulata 2.2 x 1-1.2 mm.

Flores disci 25-42 in capitulo. Corolla lutea 4-4.8 mm longa, tubo 1.5-2 mm deorsum glabro sursum sparsis vel copiosis pilis obtusis 0.2-0.7 mm et glandulis globosis pediculatis, limbo tubuloso campanulato praecipue deorsum sparsis vel copiosis pilis et glandulis, lobis oblongo-triangularibus 0.7-0.8 mm longis deorsum parvis pilis et glandulis munitis.

Typus: Colombia, Boyacá: Municipio de Socha, subpáramo seco, 2900-3000 m alt, Apr 1973, Antoine Cleef 9870; holotypus, US; isotypi, COL, U. Other collections: Hoya del río Socotá (afluente del río Chicamocha), cerros áridos, rocosos en el flanco izquierdo, arriba de la carretera después del empalme para Socotá, zona muy seca, km 53-54, 3000 m, caulirrósula, tronco 1 m alto 4 cm diam, cubierto de hoja marcescente; hoja adulta gruesa, coriácea, algo flexible verde amarillento clara, algo ruda haz, más clara envés; jóvenes verde amarillento-blanquecinas, seríceas y suaves en los nervios, cogollo blanquecino seríceo, inflorescencias secas excepto algun raro capítulo con involucre verde claro y lígulas amarillas muy cortas, marcescentes, reflejas, 4 Apr 1973, Cuatrecasas & Jaramillo 28730 (COL, US). Id., 2940 m, rósulas y caulirrósulas verdoso-grisáceo claras, tronco hasta 30 cm, involucre verde, lígulas amarillas, hojas distales y cogollo cinéreo blanquecinos, densamente tomentoso-vellosos y algo seríceos, las viejas rudas en la haz con vello mas escaso; barbas de la vaina blanca, 5 Apr 1973, Cuatrecasas & Jaramillo 28734 (US). Id., 2900 m, ladera seca, caulirrosuleto 1.5 m, hojas con indumento blanco, capítulos 7 mm diam, brácteas invol. verde limón, brácteas ligulíferas verde oscuro, lígulas amarillas, 9 Oct 1971, Jaramillo, Lozano & Díaz P. 5017 (COL).

Variety socotana differs from variety pleiochasia mainly by the more narrowed leaves towards the base, by the shorter and thicker branchlets of inflorescence and pedicels, by the more glandular involucre and by the smaller number of flowers, particularly of the rays.

ESPELETIA ROSITAE Cuatr. var. MACROCEPHALA Cuatr. var. nov.

Caulirosula 1 m alta visu albido-lutescens, trunco erecto cum foliis marcescentibus spisse crasseque tecto.

Folia coriacea flexibilia cum indumento crasso tactu molle, flavescenti-lanato tecta, 32-36 cm longa (vagina excepta), 6-7 cm lata. Lamina late oblanceolata apice attenuata acutaeque basim versus gradatim attenuata basi in pseudopetiolum brevem 2-3 cm anguste alatum 10-14 mm latum angustata, margine integerrima infra indumentum revoluta, adaxiale densissime crasseque flavescente crispo-lanata tantum costa paulo notata, abaxiale nervatione cum indumento occulta sed costa paulo conspicua et nervis secundariis plus minusve notatis, vestimentum crispo-lanatum sed praecipue juvenilia insuper tenuiter subadpressequ villosa-barbata, infra indumentum costa incrassata elevataque nervis secundariis 5-10 mm distantibus prominentibus, ad angulum 50-60° curvato-ascendentibus prope marginem magis arcuatis,

nervulis in reticulum minutum prominulum anastomosatis. Vagina late oblonga apice obtuse attenuata, 9-10 cm longa 6-8 cm lata coriacea, adaxiale glabra (apice excepto) multi-nervata, abaxiale ad apicem dense crasseque lanata et barbulata reliqua densiuscule longi-villoso luteo vel fulvo-barbata pilis tenuibus acutis antrorsis usque ad 20 mm longis. Folia juvenilia magis mollis, crassiore aureo-luteo barbulato-lanata.

Inflorescentiae axillares 15-20 in rosula folia duplo excedentes monocephalae. Axis robustus 60-90 cm longus 2/3 nudis, tertio terminali tribus paribus foliis reductis decussatis lineari-oblongis inferiori 9-14 x 1.5-2 cm, mediali 6-5 x 2-3 cm supremo 4-3 x 2-3 cm, internodiis primo 14-17 cm, secundo 2-5.5 cm, tertio 1-2.5 cm longo, omnis crasse denseque flavescens crispo-lanatus, insuper plus minusve villosobarbulatus, basi axis robusta longe denseque antrorso-barbata pilis tenuibus usque ad 20 mm, apice capitulum singulum brevipedicellatum productum, pedicello crasso lanato 1-2.5 cm longo.

Capitula magna singula ad terminationem scapi, cernua, subglobosa, 5-7 cm diametro, circa 470 flores ferentia, circulo ligularum 55 mm, disco 35 mm diam in vivo. Involucrum profunde cupulatum dense crasseque flavo-lanatum 5-7 cm diametiente 4 cm altum. Phyllaria sterilia circa 13 crasse herbacea ovato-oblonga apice plus minusve attenuata subobtusa vel obtusa, adaxiale glabra conspicue 12-10-nervata subapice lanato excepto, abaxiale densissime lanata barbis ad 12 mm longis, dua exteriora opposita 40 x 22-20 mm, sex 36-34 x 19-16 mm, quinque interiora 32-30 x 18-13 mm. Phyllaria fertilia externa 28-25 x 12-10 mm, late oblonga obtusa vel subobtusa, saepe infra extremum contracta, extus parce sed sursum dense lanuginosa, cetera introrsum gradatim breviora tenuioraque 22-16 x 9-5 mm, oblonga amplexentia utrinque attenuata apice subobtusum glabra sed subapice barbulata pilis brunneis erectis acutis 0.5-1.5 mm longis. Receptaculum patelliforme ad centrum paulo convexum, 20-22 mm diametro. Paleae 15 x 5 mm, rigide membranaceae, oblongae apice angustato subobtusum, 5-7 nervatae costa magis rigida prominulaeque, subapice apiceque barbulatae pilis 0.5-0.8(-1) mm, acutis plus raris glandulis brevibus ad margines plus minusve conspicuis.

Flores radii feminei 5-6 seriati circa 117 in capitulo. Corolla lutea 20-23 mm longa, tubo 5.5-6 mm longo stricto, copiose patulo-piloso pilis crassis basim versus dilatatis (conico-oblongis) obtusis 0.5-0.25 mm ad apicem paulo longioribus, et parvis glandulis capitatis intermixtis praedito, intus saepe 1-3 filamentis staminodialis flexuosis usque ad 4 mm munito; lamina stricte lineari 1.5-1.8 mm lata, apice 2-3-dentata, 5 nervata, ad duos nervos robustiores 2-plicata, basi paulo brevi-pilosa excepta glabra. Stylus 10 mm longus. Achaenia subobovato-oblonga apice emarginata, exteriora triangulata 4 x 3 mm basi leviter attenuata obtusiuscula dorso plano-convexo tenuiter striolato adaxiale subulato-angulata, interiora 5 x 2 mm 4-angulata angulo dorsali obtusiusculo ceteris argutis.

Flores disci pseudohermaphroditi circa 350 in capitulo. Corolla

12-13 mm longa paulo incurva leviterque zygomorpha, tubulo 5-5.5 mm longo sparsis pilis crassis sursum attenuatis obtusis 0.05-0.2 mm cum parvis glandulis columnari-capitatis circa 0.05 mm intermixtis, limbo stricto tubuloso parvis vel raris glandulis munito, lobis oblongo-triangularibus 1.2-1.5 mm ad margenes adaxiales dense longi-papilloso, extus parvis vel raris pilis crassis obtusis 0.05-0.15 mm et parvis glandulis breviter pedicellatis vel subsessilibus. Antherae 4.2-4.4 mm appendice elliptica apice leviter attenuata subacuta incurva 0.9-1 mm longa. Stylus 13-14 mm longus apice leviter incrassato minute papilloso-piloso. Nectarium 1 mm stricte tubulosum.

Typus: Colombia, Boyacá: Páramo next to Santa Rosita on the way to Gonzaga, 3300 m alt marginally associated with extensive, exclusive communities of *Espeletia arbelaezii*, continuation of the páramos Guantiva-Huinas complex; "caulirrésula 1 m alta, tronco 30 cm alto cubierto de grandes hojas marcescentes, 6 cm diam debajo del ápice, hojas adultas coriáceas firmes blanquecino-verdoso-amarillentas, cogollo amarillo dorado vivo, inflorescencias axilares monocéfalas gruesamente amarillento-lanudas, capítulos grandes, involucro amarillo claro lanudo, lígulas amarillo vivo, flósculos amarillos, círculo ligular 5.5 cm, disco 3.5 cm diam, vaina foliar con barbas amarillo-rubias", 6 Apr. 1973, J. Cuatrecasas & R. Jaramillo 28743; holotypus US; isotypi, COL, US). Another collection: Boyacá: N. of Belén: Cerro Pan de Azúcar, Cabeceras de Quebrada Las Barrosas, Hoya El Santuario, "vallecito pantanoso muy húmedo con Sphagnum, 4050 m alt, caulirrésula 2-3 m, hojas amarillas, lígulas amarillas," 7 May 1973, Antoine Cleef 9824 (U,US).

ESPELETIA SUMMAPACIS Cuatr. sp. nov.

Caulirosula visu albida, caule simplice erecto usque 2 m alto 6-8 cm diam, cum foliis marcescentibus spisse oblecto.

Folia coriacea adulta rigida. Lamina sessilis lanci-oblonga, sursum gradatim angustata acuminata acuta, deorsum paulo attenuata margine integra leviter revoluta incrassataque, 36-52 cm longa 3.5-5.7 cm lata, basi (1.2-)1.5-1.8 cm lata; supra densissime lanata, praematuritate alba vel viridi-alba visu subsericea pilis valde longis inferne pluriarcuatis intricatissimis extremo tenui recto ascendenti adpressoque, aspectu superficiei sericei, adulta vetustaque cinerea vel viridi-cinerea dense adpresseque crispo-lanata; subtus etiam albo-sericea vel cinerea costa crassa elevata multi-striata, circa basim valde dilatata, nervis secundariis prominentibus angulo 60-70° patulo-ascendentibus, inter se 5-8 mm distantibus, circa marginem valde arcuatis ascendentibus et cum minoribus anastomosantibus, nervulis tertiis et minoribus reticulum prominentem minutum formantibus, areolis profundis glabris sed reticulo dense lanato pilis patulis sed arcuato-crispis intricatis vestimentum albidum vel viridicinereum formantibus, costa crasse densissime adpresse albo-lanata insuper praecipue juvenili adpresse sericeo-villosa. Vagina crasse coriacea ovato-oblonga vel subtrapeziale 6-7 cm

longa, 4-6 (basi) lata, argute paralleli-nervata adaxiale glabra subapice excepto lanato, abaxiale densissime adpressequ longe villosa, pilis ad 20 mm longis, sursum magis intricatis lanato barbatisque. Gemma terminalis et folia initialia densissime crasseque longe villosa-induta nitente albo-sericea.

Inflorescentiae axillares cymosae, 3-capituliferae rosulam paulo superantes. Axis robustus striatus erectus nudus, dense crasseque albo-lanatus pilis longis crispis intricatisque in juvenile insuper plus-minusve longe villosa-sericeis, basi crassior densissime longe barbatus pilis tenuissimis antrorsis usque ad 30 mm longis. Pedunculi monocephali tres, centralis cum lateralibus longior, 10-18 cm longi, dense crasseque albo-lanati juventute insuper sericeo-barbulati, suberecti, sursum flexuose arcuati unusquisque capitulum globosum 4-6 cm diam floccoso-albo-lanatum nutantem ferens. Bracteae subtendentes decussatae anguste lineares vel lineari-subulatae acutae basi amplexantes, 7-13 cm longae 0.8-1.5 cm latae.

Capitula globoso-campanulata dense crasseque albo-gossypina, 4-6 cm diametentia, 450-736 flores ferentia. Involucrum subcampanulatum circa 3 cm altum, adpresse expansum 70-120 mm diametro circulum ligularum valde excedens. Phyllaria sterilia 35-50 pluriseriata, oblongo-sublanceolata vel subulato-lanceolata, acuminata acutaeque, basi paulo vel levissime attenuata incrassataque, exteriora 10-14 utrinque densissime albo-lanata barbataque 53-30 x 12-5.5 mm, ceteris gradatim minoribus et adaxiale minus vestitis 33-17(-14) x 9-3 mm, exteriora tantum costa basi dilatata bene conspicua reliquis venis tenuibus reticulatis prominulis superficiem rugosam formantibus, interiora costa conspicue prominenti duobus nervis lateralibus ascendentibus sursum venulis reticulatis abaxiale dense pilosis et glandulis copiosis 0.02-0.03 mm interspersis, adaxiale pilis sparsis vel (intima) glabra. Pili inferne crassiusculi cellulis brevibus numerosis sursum tenuioribus elongatis valde flexuoso-intricati. Phyllaria fertilia tenuiora subhyalina exteriora dorso copiose glandulifera et plus minusve antrorso-villosa pilis 1-2 mm margine ciliata pilis 0.5 mm, (24-)20-13 x 4-2.6 oblonga subapice saepe paulo ampliata apice attenuata acutataque, costa notata plus 1-2 nervis lateralibus parallelis tenuibus et venulis reticulatis, cetera intima gradatim minora 16-10 x 4-2(-1.8) mm, anguste oblonga subite acutata apice dorso barbulata et glandulata deorsum sparse pilosa intus glabra. Receptaculum planum (24-)20-18 mm diametro, minute hirtum pilis acutis 0.3-1 mm longis. Paleae membranaceae subhyalinae rigidae dorso subcarinato-costatae complicate semiamplexantes basi incrassata magis amplexenti, oblongae apice angulato acutoque, vel subacuto 2-3 nervis utroque latere tenuibus plus minusve conspicuis, abaxiale tantum ad costam pilosulae dorso subapicem breviter barbulatae pilis antrorsis rectis vel leviter flexuosis 0.4-0.7(-1) mm longis.

Flores radii feminei 4-5-seriati 127-236 in capitulo. Corolla lutea 16-22 mm longa, tubo 2-2.8 mm longo, copiosis glandulis pediculato-capitatis 0.02-0.07 mm et adaxiale antrorso-piloso

praecipue apicale ad verticem barbato et ad basim annulato-barbato pilis hyalinis, obtusiusculis vel acutis, 0.4-0.8(-1.5) mm; lamina oblonga deorsum angustata apice rotundata obtuseque 2-3-dentata, 2-2.8 mm lata 7(-9) nervis bene conspicuis subtus prominulis duobus crassioribus, utrinque glabra. Stylus 7-11 mm longis ramis 2-3 mm subulatis. Achaenia matura atra exteriora obovato-oblonga 4 x 2 mm triangulata dorso planiusculo, interiora magis oblonga quadrangulata 4 x 1-1.1 mm, basi leviter attenuata.

Flores disci pseudohermaphroditi 300-478(-500) in capitulo. Corolla lutea 9-11.5 mm longa, tubo 2.5-3 mm longo glabro vel sursum seu apicem parvis vel raris glandulis ad 0.07 mm, limbo tubuloso basi parvis glandulis pediculatis 0.03-0.08 mm, lobis triangularibus 0.8-1.3 mm longis crasse marginatis abaxiale glabris vel raris glandulis subsessilibus, margine minute papillosis. Antherae circa 3.5-4 mm longae basi acute breviterque sagittatae appendice apicali elliptico-oblonga subacutata 0.8-1 mm longa. Stylus 11-13 mm extremo breviter fissus lobis oblongis subobtusis extus papillosis. Nectarium 0.7-1 mm longum tubulosum apice incrassato-cupulato conspicueque 5-dentato. Ovarium sterile pediculiforme 0.4 mm longum.

Typus: Colombia, Cundinamarca: Macizo de Sumapaz, adelante de Andabobos, cerca al Pico de San Mateo, páramo, 3950-4000 m, caulirrosuleto de tallo corto, capítulos generalmente 3-floros, aspecto totalmente blanco, inflorescencias péndulas con las flores ocultas, radiales amarillas, las centrales ocreas, 7 Febr 1975, Lorenzo Uribe-Uribe & Roberto Jaramillo-Mejía 6895; holotypus, US; isotypus, COL. Other collections: same locality and collectors n^o 6896 paratypi (COL, US); same locality, older specimen with fruits, stem 1 m high, L. Uribe-Uribe & R. Jaramillo-Mejía 6897, paratypi (COL, US); near crest of Alto de San Juan in a small pass about 10 k N. of Nevado de Sumapaz, W. of Quebrada Rabona, 4000 m, abundant growing with n^o 20679 with no apparent intergradation; rosette on top of stem 6 cm thick covered with old leaf bases, making the whole 15 cm thick, about 1.5 m tall, heads whitish, nodding, rays yellow, inflorescence axillary spreading, 8 Aug 1943, F. Raymond Fosberg 20677 (NY, F). Páramo de Sumapaz, Cuchilla La Rabona between Andabobos and headwaters of Rio San Juan, 4000 m, "vertiente pantanosa con Chusquea, Alchemilla, Breutelia y Sphagnum; caulirrosula 1 m, hojas grisáceas, infl. péndulas, lígulas amarillas, frailejón", 11 Nov 1972, Cleef 1575 (U, US).

Espeletia summapacis is distinguished by its large heads with several rows of narrow, lance-linear or acuminate-oblong phyllaries much longer than the rays, by its inflorescences of three white woolly nodding heads, by the sessile, long, sublance-oblong leaves scarcely narrowed to the base, and by the white woolly habit of rosettes and inflorescences.



Cuatrecasas, José. 1975. "Miscellaneous notes on neotropical flora, VII." *Phytologia* 31(4), 317–333.

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