VII. *On the* Lycium *of Dioscorides. By* John Forbes Royle, *Esq., F.L.S., late Superintendant of the Hon. East India Company's Botanic Garden at Saharunpore.*

Read January 15th, and February 5th, 1833.

THE identification of the plants which constituted the Materia Medica of the Greeks has so long been a subject of interesting research to the most able naturalists, that any attempt to define what they have left undetermined, or to discover what has eluded their researches, and, still more, to differ in opinion, when they seem most clearly to have elucidated a doubtful point, may seem to many an act of presumption. But this will not appear so, when it is considered that the Materia Medica of the ancients, like that of the present day, was supplied by a variety of countries; and that it is only as these have been investigated by naturalists that the plants which afford medicinal articles have been ascertained: and as some countries still remain unexplored, the plants which yield us valuable substances, such as myrrh, in use from the most ancient to the present times, still remain undiscovered.

The success which has attended the investigations of Clusius, Kæmpfer, Tournefort and Sibthorp, who, to a knowledge of Botany, added that of the authors who have written on the Materia Medica of the Greeks, and then travelled in the countries where the same plants continue to be produced, encourages further inquiries in other countries, whence many articles are said to have been brought to the Greeks and Romans.

India is one of the most remote of these countries, and that which has been within a few years so much investigated as to allow of a very good idea being formed of at least its vegetable productions. Little, however, has yet been done with respect to its Materia Medica; but from the success which attended the efforts of Sir William Jones and Mr. Colebrooke in making out some of the plants affording medicinal articles, much may be hoped from the attention of others being directed to the same interesting field of inquiry. Having been

favourably situated in the north-western provinces of India for carrying on such investigations, I offer the following as an attempt to trace out one of the articles mentioned by Dioscorides as procured from India.

The *Lycium*, λυκιον, of Dioscorides is one of those articles of the ancient Materia Medica which still remains undetermined, owing in some measure to its not being at present employed in European practice, and also to Dioscorides having described two different kinds under the above name, one the produce of Lycia and Cappadocia, and the other of India. The former, he says, is by some called *Pyxacantha*, πυξακανθα, and is a thorny shrub, with branches of three cubits or more in length; leaves like box thickly set, full of fruit like pepper, black, light and bitter; bark pale-coloured; roots numerous, crooked, woody; and that it grows in stony places. The mode of making the medicinal article is then described, and is that universally employed for making vegetable extracts. The bruised roots and branches being macerated for some days in water, the liquor is strained, and boiled until it becomes of the consistence of honey. The Indian kind, Dioscorides says, is more valuable and efficacious as a medicine; and he adds, that it is said to be made from a shrub called *Lonchitis*, λογχιτις, which is thorny, and has branches three or more cubits in length, thicker than those of *Rubus*, with numerous roots; that the bark, when bruised, becomes of a reddish colour, and that the leaves are like those of the olive. That a considerable degree of uncertainty still prevails respecting the plant or plants alluded to in the above descriptions will be evident, if we refer to the latest authors who have noticed the subject.

In the *Dictionnaire Universel de Matière Médicale* of Merat and De Lens (1832), where the opinions of some previous authors are given under the article "*Lycium*," the authors conclude with saying, "Aujourd'hui on ne connaît plus cette composition," and do not hint at the plant producing it. In Rees's Cyclopædia, the author of the article under that name says, "*Lycium*, λυκιον, of Dioscorides, so called from Lycia, where it is said to have been abundant, but what was the precise plant has never been settled by commentators:" while under the article "*Rhamnus infectoria*, frequent in rough stony places in Greece," apparently the same author observes, "rightly considered by Dr. Sibthorp as the λυκιον, *Lycium*, of Dioscorides." Sprengel, in *Historia Rei Her-*

bariæ, vol. i. p. 162, quotes Rauwolf and Hasselquist as authorities for considering *Lycium europæum* as the λυκιον of Dioscorides, though he alludes to the opinion of Prosper Alpinus, that *Berberis cretica* was the plant, but that he had not obtained any of the juice from it. In the same work, at page 191, Sprengel, in conformity with the opinion of Garcias ab Orto, gives *Acacia Catechu* as the plant yielding the λυκιον ινδικον of Dioscorides.

From the above references it is evident that the subject does not appear to have been so satisfactorily settled as to render further investigation unnecessary; but it is expedient, before proceeding in our inquiry, to refer to the authors who have treated expressly on the subject.

In Matthiolus's Commentaries on Dioscorides, (edition of 1698, by Caspar Bauhin,) figures of three plants are given, which he thinks may be those yielding *Lycium*. The first, called simply *Lycium*, appears to be *Rhamnus catharticus*; the second, called *Lycium italicum*, may be *Rhamnus infectorius*; and the third is *Buxus sempervirens*.

Garcias ab Orto in *Clusii Exot.* lib. i. cap. 10. p. 163., after describing the mode of making Catechu from the wood of *Acacia Catechu*, which, he says, is called *Hacchic*, adds: "Nunc superest, fuerit ne *Cate* veteribus cognitum, examineremus. Ego si mihi dicere licet quod sentio, omninò existimo nostrum hoc *Cate* nihil aliud esse, quàm Græcorum et Latinorum Lycium. Nam ejus extrahendi ratio ab omnibus eadem describitur, iisdemque facultatibus pollere censetur quibus nostrum *Cate*. Huc, adde, quòd Indicum Lycium præfertur cum à Dioscoride, Plinio, tum à Galeno. Vocatum autem est à Græcis Lycium, quoniam in Lycia primùm inter Græcos illius usus repertus sit, optimumque istic nasci eo tempore censerent. Præfertur etiam Indicum Avicennæ et Serapioni, qui id *Hadhadh* appellant, easdemque illi facultates tribuunt, quas Græci et Latini. Avicenna vult in ejus penuria Arecam et Santalum substitui." To this Clusius adds, "Dioscoridi Lycium folia Buxi habet, et pusilla est arbor. Itaque longè alia censenda est quàm ea quæ nostro auctori describitur." I do not think that this would be considered an insuperable objection, as it is not to be supposed that Dioscorides ever saw the plant affording the Indian *Lycium*; indeed, he expressly says, "it is related, that a plant with leaves like the olive, &c., yields the Indian Lycium." From the foregoing extract it appears that Garcias ab Orto considered *Catechu* to be *Lycium*, because both are similarly

made, both possess nearly similar properties, and both are Indian products, and because the Indian *Lycium* was always preferred by ancient practitioners. But I have never seen in any of the Persian works on Materia Medica, which are derived from the Arabic, the name *Hadhadh*, or *Hacchic*, applied to Catechu, though, as will afterwards abundantly appear, it is to *Lycium*. Rauwolf, in his Itinerary, p. 485, mentions *Lycium* as "a plant with small branches, which still retains its name among our apothecaries, called by King David, in the 58th Psalm, by its Hebrew name *Hadhadh*, by which it is still known among the Arabs, the two languages being nearly related." The plant figured is by Sprengel called *Lycium europæum*; it may be a species of *Rhamnus*. Prosper Alpinus, in his work *De Plantis Ægypti*, lib. i. cap. xi. & xii., describes and figures two plants, which he supposes may be the *Lycium* of Dioscorides; the first, he says, is called *Agihalid*, though a tree, but has leaves like Box, and is used in medicine. This is said by Sprengel (vol. i. p. 383.) to be the *Rhamnus divaricatus* of Forsköl, though I do not find this enumerated among either the species or synonyms of *Rhamnus*. The plant represented is known to be *Balanites ægyptiaca*, the *Ximenia ægyptiaca* of Linnæus. The second plant, which he considers may be *Lycium*, is called *Uzez*, and is referred to *Lycium europæum* by Sprengel. Both of these plants are supposed by Prosper Alpinus, without, however, his adducing any proofs, to be the *Lycium* of Dioscorides. Hasselquist found *Lycium europæum* in Egypt beyond Cairo, near the banks of the Nile. It is common in hedges in Greece, and was identified by Dr. Sibthorp as being the ῥαμνος of Dioscorides, as it still retains the same name. Prosper Alpinus, in his subsequent work, *De Plantis Exoticis*, referring to his former opinions, gives a description and figure of *Berberis cretica*, which he considers to be the true *Lycium* of Dioscorides. This he describes as "spinis horrens, foliis buxi, baccæ oblongæ, nigrescentes, piperis magnitudine et rotunditate, sapore stiptico, primò subdulci, post amarescente;" adding, "quod pertinet ad istius plantæ facultates, atque ad usus medicos proculdubio habebit et hæc planta easdem, et vires et usus quos antiqui de *Lycio* tradiderunt;" but that he is ignorant whether any extract like *Lycium* is obtained from the roots or branches of this plant. Sir James E. Smith, in the *Flora Græca*, tab. 342., under *Berberis cretica*, (Cretan or Box-leaved Barberry,) quotes this synonym of Alpinus as well as that of Pona, who calls it "*Licio di Candia*,"

and of Tournefort, "*Berberis cretica buxifolia*"; but does not refer to any of them under the articles "*Lycium*" and "*Rhamnus infectoria*".

In the quotation made from Rees's Cyclopædia, stating Dr. Sibthorp's opinion that *Rhamnus infectorius* is the *Lycium* of Dioscorides, the reasons not having been stated for the Doctor entertaining this opinion, I applied to Professor Lindley for some information on the subject, and he has kindly favoured me with the following extract from Dr. Sibthorp's manuscripts.

"84. λυκιον. Probably the *Rhamnus oleoides**, which agrees very well with the description of Dioscorides. Frequent in the island of Milo and other parts of Greece. The wood of this tree is a valuable article of commerce, and is exported to England for the use of the dyers under the name of *Fustick*: the Greeks call the wood χρυσοξυλον, from its dyeing a golden or yellow colour. Dioscorides describes the manner in which the expressed juice was drawn from the roots, the stem and the fruit. Besides its medical uses, it was used by the Greeks for dyeing the hair yellow."

In addition to this it may be added, as stated in Rees's Cyclopædia, that the unripe berries are much used for dyeing, and are imported in great quantities into England under the name Turkey berries, or *graine d'Avignon*, being used for giving the yellow colours to Morocco leather. It is worthy of remark, also, that one species of *Rhamnus* is called *R. lycioides*, or Box-thorn Rhamnus, and that several species are possessed of medicinal powers, and others are used for their colouring properties, as *Rhamnus catharticus*, more generally known as a purgative, under the form of Syrup of Buckthorn: the juice of its unripe berries has the colour of saffron, and is used for staining paper. The inner bark and berries of *R. Frangula* are also purgative, and, according to their ripeness, are employed for dyeing yellow, green, or blue.

It is not improbable, therefore, that if not *infectorius*, some other species of the genus *Rhamnus* may have been employed as *Lycium*, though we have no proof that that extract had ever been obtained from any of them, as related by Dioscorides; but the roots, stems and berries of *R. infectorius* possessing medicinal and colouring properties, and being common in the countries where one kind of *Lycium* is said to have been produced, and species of *Rhamnus*

* *infectorius* (potiùs).—Note in Sir J. E. Smith's writing.

having been by the older botanists called *Lycium*, are certainly in favour of its being the plant yielding one kind of *Lycium*.

It is remarkable, however, that the genus *Berberis*, of which one species, as before mentioned, was supposed by Prosper Alpinus to be *Lycium*, possesses so many of the same properties as some species of the genus *Rhamnus*. *Spina Appendix*, *Oxyacanthos*, *Amyrberis* and *Crespinus* are the names given to the common Barberry by Pliny, Galen, Avicenna and Matthiolus. The fruit is a mild astringent acid; the leaves have similar properties, but in a less degree. The young bark is said to be purgative, and was formerly given in jaundice. The bark and wood, both of the stem and root, are yellow, bitter and styptic, and have been employed as astringents. The root contains a yellow colouring matter, sufficiently abundant* to be employed for dyeing flax, cotton and wool, and to give a lustre to prepared leather. It is found also in every part of Europe, and in the western parts of Asia, from Portugal to Georgia, and from Crete to Norway, occurring in the plains in northern latitudes, and on mountains in the south, as on Lebanon. Its geographical distribution, therefore, is not incompatible with that of *Lycium*, while *Berberis cretica* is chiefly found in the islands: one species is moreover called *Berberis buxifolia*. It is singular that a plant so remarkable as the Barberry for its conspicuous flowers, peculiar odour, acid fruit and leaves, thorny nature, and yellow wood, should not be noticed by Dioscorides, if it was then, as now, an inhabitant of the same localities. It may, perhaps, be more than an accidental coincidence, that the old English name of Barberry is *Pepperidge-bush*, and that the fruit of *Lycium* is compared by Dioscorides to that of πέπερι, which is always translated 'pepper'.

From everything that has been yet adduced, it is evident that considerable uncertainty still prevails respecting the plant producing the *Lycium* of Asia Minor, while that which afforded the original and most efficacious kind imported from India has hardly been hinted at; for the opinion of Garcias ab Orto that *Acacia Catechu* was the plant, is unsupported by any proof, and is incompatible with the writings of Oriental authors to be afterwards adduced. If we suppose that the same plant produced the *Lycium* of India and of Lycia,

* *Vide* analysis by Brande, *Bulletin des Sciences Médicales* de Férussac, tom. vi. p. 186. Vauquelin has further proved, that few woods are superior to that of *Berberis tinctoria*, a variety of *B. asiatica*, for dyeing yellow.

it is evident that the *Acacia Catechu* is not that plant, for it does not extend beyond India; and though *Rhamnus infectorius* may have produced one kind of *Lycium*, it is a plant which does not exist in India: but from the Barberry possessing so many of the same properties, being used for the same purposes, and occurring in the same countries, it appears to me as likely as any other to have been the true *Lycium*. But if it be required that species of the same genus should have produced the two kinds of *Lycium*, it will not be difficult to find one, of which species are indigenous both in India and Asia Minor, possessing all the requisite characters, and from which an extract is even at the present day prepared, answering in every respect to the *Lycium* of Dioscorides.

It is well known that the knowledge of Grecian medicine was transferred to the Arabians by means of translations made at Bagdad in the caliphates of Al-Mansor, Harroon-Al-Raschid, and especially of Al-Mamoon; and among the first works translated were those of Pliny, Galen and Dioscorides. The Persians have translated from the Arabic into their own language, and their works are now the text-books of all the Mahommedan students and practitioners of medicine throughout India: we may expect, therefore, to find some traces of *Lycium* in the portion of these works which treats of Materia Medica.

In the Index to the *Mukhzun-ool-Udwieh* (or Storehouse of Medicines), I find لوفيون, *loofyon*, mentioned as the plant which yields *hūziz*, and that in Persian it is called *feel-zuhreh*. In referring, in the body of the work, to the account of *hūziz*, *loofyon* is said to be its Greek name. This must evidently be intended for *lookyon*, particularly if we attend to the context, which corresponds with the description of Dioscorides; and this there is no difficulty in conceiving, for the letters *f* and *k* in composition are similarly written in the Arabic alphabet, and differ only in the latter having two, and the former only one diacritical point placed over it; thus, لوقيون, *lookyon*, may easily, by an error of the transcriber, be converted into لوفيون, *loofyon*, as has been done, to adduce a familiar instance, in the name of Antiochus, the first of Alexander's successors who reigned in Persia, from *Antakhash* into *Abtakhash*; فيلقوس, *Filafoos*, Philip of Macedon, into فيلقوس, *Filakoos*.

*H*oozuz, or *h*ooziz, is further described as being of two kinds; one from India of which the Hindee name is *rusot*, and the other from Arabia; that the Greek name is *loofion*; the Persian *feel-zuhreh*, which in Hindee is also called

rusunjun; and that this kind, in the language of Misr, or Egypt, is called *kholan*. The Persian name *feel-zuhreh* is translated in our best Persian and Arabic Dictionary *Box-thorn*, the literal translation of πυξακανθα. The Persian, being compounded of two words, *feel*, an elephant, and *zuhr*, a yellow flower, may refer to the brightness or conspicuous nature of the flower, in the same way that a turkey is called *feel-moorgh*, the elephant-fowl.

The description appended to the synonyms of *hooziz* is evidently a translation of that of the λυκιον of Dioscorides, as it is said to be "an extract of the leaves and seed of a thorny plant, about three cubits in height, of which the leaves are like those of box, and the fruit like that of black pepper," &c. The mode of manufacturing it is then described, as well as the composition of an adulterated kind, which for many purposes must be superior as a medicine to the original article, being composed of myrrh, aloes, saffron, syrup and decoction of myrtle-leaves, nearly as the present Pilulæ Aloes cum Myrrha are made. This will explain a passage in all accounts of *Lycium*, in which one kind is said to have been inflammable, and the other not so; though the Persian writers appear to have reversed the matter, in making the vegetable extract inflammable, and the resinous compound not so.

The author of the *Mukhzun-ool-Udwieh*, in an article on the Indian *hooziz*, mentions that the best kind came from Nuggur-kote, in the neighbourhood of Lahore, and was supposed to be made from the fresh juice of *Myrobolans*. To this it may be objected, that as species of *Terminalia* are found all over India, it is not likely that an article so much in use should only be manufactured in the neighbourhood of a hill-fort, which it is known serves as a commercial entrepôt for exchanging the produce of the hills with that of the plains. The same author then alludes to another writer, who mentions having obtained his information from a Hindoo physician of repute, that *rusot* is the inspissated extract made from a decoction of the fresh wood of *dar-huld*, or the *turmeric-coloured wood*.

The Sanscrit and Hindee name *dar-huld* is called *zur-chob* and *zurd-chob* in Persian, and in Arabic has a name signifying "the *turmeric-coloured root*: it is said to be an Indian tree, of which the wood is yellow, and from which *rusot* is said to be made.

On inquiring in the shops of the druggists in the bazars of India, I everywhere learnt that both the wood *dar-huld* and the extract *rusot* were im-

ported from the hills into the plains, and that large quantities continued to be brought from Nuggur-kote as well as other places.

While travelling in the Himalayas, I continued my inquiries on the subject, and on wishing to be shown the plant which produced the wood called *dar-huld*, as well as that from which the *rusot* was procured, species of Barberry were immediately pointed out; and I was told that both the wood and the extract were procured indifferently from *Berberis asiatica*, *B. aristata*, and *B. Lycium*, as well as from *B. pinnata*, the *Mahonia nepalensis* of De Candolle. On cutting into the wood of each, and having some converted into extract, I found both to correspond in every respect with the wood and the extract which I had bought in the plains under the names of *dar-huld* and *rusot*.

As the above plants, (with the exception of *B. Lycium*, for the characters of which the reader is referred to the end of this article,) have been fully described by De Candolle in his *Systema Vegetabilium*, and as *B. asiatica* and *Mahonia nepalensis* are figured in the 1st and 3rd Plates of the 2nd volume of *Icones Selectæ Plantarum* of the Baron De Lessert, and *Berberis aristata* in Plate 98 of Dr. Hooker's Exotic Flora, it is unnecessary to dwell on their botanical characters. It may be interesting, however, to remark, that *B. Lycium* is found as low as 3000 feet, *B. asiatica* grows naturally in 30° of latitude, at elevations of from 5000 to 7000 feet, *B. aristata* at from 5000 to 8000 feet, and *B. pinnata* is prevalent at from 6000 to 7000 feet above the level of the sea; and it may also be observed, that the French traveller Leschenault de la Tour found *Berberis tinctoria*, which is considered in the work of De Lessert to be the same as *Berberis asiatica*, on the Neel-gherris, in 11° of latitude, at 8000 feet of elevation, and that there also it is brought into use. "E ligno corticeque elicitur color luteus, cæteris præstantior." De Candolle, in the Addenda to the 2nd volume of his *Systema Vegetabilium*, describes it as "Lignum flavissimum, amarissimum."

It was observed in a former part of this paper as remarkable that there appeared to be no traces of any description of the Barberry in Dioscorides. I was anxious, therefore, to ascertain if the Arabians and Persians had alluded to it; and I adduce the following curious and good specimen of their mode of describing a plant, of which there do not seem to be any traces in their Greek originals.

The Barberry is called *amburbarees*, as in Avicenna, quoted by De Candolle: its Persian synonyms are *zerishk*, *zaruj*, *zurunj*, *zurak*,—all having reference to its yellow colour,—derived apparently from *zur*, gold, and closely assimilating to *zuhruj*, before referred to under *hooziz*. The bark of the root is called *arghees*, of which the synonyms are in Persian equivalent to "bark of the yellow root," "bark of the root of Barberry." The plant itself is described as being "a thorny plant; that its thorns are triple, that is, wherever they occur, three come out together; an inhabitant of the lower hills in Khorassan and Shirwan, and towards Shiraz, in Syria and in Room (that is, Turkey); but that the kind which is found in Khorassan and Shirwan is preferable on account of the fruit being full of juice and free from seeds; but in the environs of Shiraz it is found full of seeds; and that which grows in lofty and cold places is always the best. Its leaves are like those of *Yasmin*, but longer and narrower: its flowers are yellow, with a shade of white, crowded together near the tops of the branches; fruit oblong, and clustered together; when unripe green, afterwards red, and finally purple. The plant varies in height from two to three fathoms, or is about the size of an apple-tree," &c.

From this description, it is evident that the Barberry was well known to the old Arabian and Persian authors; and though the knowledge of the fact seems to have been lost, I think it is evident they were aware that the Indian *hooziz* was made from the wood *dar-huld* and the plant *zuhruj*: this is more clearly stated by the later authors who had communication with Hindoo physicians. It has been proved that the Indian *hooziz* is *rusot*, and that both it and the wood *dar-huld* are the produce of species of Barberry; that the Greek name *loofyon*, or *lookyon*, is given as a synonym of *hooziz*, followed by the description of *Lycium*, λυκιον, as given in the 133rd chapter of the 1st Book of Dioscorides: we may therefore, I think, safely conclude that the *Indian Lycium* was then, as now, made from the wood and root of species of Barberry. Whether the Arabian *hooziz* was the produce of a distinct plant, or only an artificial compound of myrrh, aloes and saffron, does not so clearly appear. The *Lycium* of Asia Minor may have been made from different species of *Rhamnus*, or from *Rhamnus infectorius* only; but it may also have been made from *Berberis vulgaris*, as formerly inferred.

In conclusion, it remains only to add, that the *rusot* is at the present day

procurable in every bazar in India, and used by the native practitioners, who are fond of applying it both in incipient and chronic inflammation of the eye, and in the latter state, both simply and in combination with opium and alum. It is sometimes prescribed by European practitioners; and I have heard that it was found very efficacious by Mr. M'Dowell in the ophthalmia of soldiers who had returned from the expedition to Egypt. I have myself occasionally prescribed it; and the native mode of application makes it particularly eligible in cases succeeding acute inflammation, where the eye remains much swollen. The extract is by native practitioners in such cases rubbed to a proper consistence with a little water, sometimes with the addition of opium and alum, and applied in a thick layer over the swollen eyelids; the addition of a little oil I have found preferable, as preventing the too rapid desiccation. Patients generally express themselves as experiencing considerable relief from the application.

I conceive that two species, under *B. aristata*, or at least two such very distinct varieties have been included, as to require particular notice. These are distinguished by the natives, apt to confound things together, by the names *kushmul* and *chitra*. The former growing at low elevations, (as 3000 feet,) and therefore easily acclimated in the plains of India, has the leaves and branches paler-coloured, more thorny; flowers numerous; racemes erect, appearing earlier in the season, and having less pleasant-tasted fruit; while *chitra*, which I conceive to be the true *B. aristata*, I have not found below 5000 feet of elevation, with brownish-coloured branches, smooth, shining, almost entire leaves, each flower much larger than those of *kushmul*, though less numerous, on each of the drooping racemes. The fruit of this species, as well as that of *B. nepalensis*, is dried as raisins are in the sun, and sent down to the plains for sale.

1. *Berberis aristata*, spinis infimis tripartitis superioribus simplicibus compressis basi vix bidentatis, foliis 4—6-fasciculatis viridibus obovatis oblongisve nitidis basi attenuatis integerrimis spinuloso-dentatisve, racemis 15-floris nutantibus folio longioribus, pedicellis sæpe trifidis trifloris, squamulis rotundatis, ovariis subpilosis, baccis oblongis utrinque acutis.

B. aristata. *DeCand. Syst. Veg.* ii. *p.* 8. *Prodr.* i. 108. *Wall. Catal. n.* 1474. ex parte.

B. Chitria. *Don, Prodr. Fl. Nep. p.* 204. *Hooker, Exot. Flora, tab.* 98.

Hab. Jurreepanee to Mussooree and Choor Mountain, 5000 to 8000 feet of elevation; flowers in May. Hill-name *chitra.*

Arab. *amburbarees.* Pers. *zirishk*; wood, *dar-huld* and *dar-chob*; extract *hooziz.* Hind. *rusot.*

2. *B. Lycium,* spinis 3-partitis conicis, foliis 5—8-fasciculatis pallidis coriaceis venosis oblongis lanceolatis v. obovatis basi attenuatis mucronatis, marginibus spinuloso-dentatis v. integris, racemis 20-floris erectis patulis demum (fructiferis) pendulis, pedicellis longis simplicibus, floribus parvis, squamulis lanceolatis, ovariis glabris tetraspermis, baccis ovatis utrinque obtusis.

B. floribunda. *Wall. Catal.* 1474? Kemaon. B. angustifolia. *Roxb. Fl. Ind.* ii. *p.* 183.?

Hab. Rajpore to Mussooree, or from 3000 to 7000 feet of elevation; also from Nahn to Choor: flowers in April. Hill-name *kushmul,* chiefly employed in Gurhwal and Sirmore for making *rusot.*