

# THE GENUS OLINIA.

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THE genus *Olinia* was founded by Thunberg in 1799 ("Roem. Arch.," II, i, 4, 1799), and belongs to the natural order *Lythraeae*. The genus contains important forest trees, and was first dealt with in this connection by Sim in his "Forests and Forest Flora," p. 227. Sim only recognized one species, viz. *O. cymosa*, but divided this into three varieties, as follows:—

Var. *latifolia*, mostly in the Western Province.

Var. *intermedia*, found in the Midland Conservancy and sparingly elsewhere.

Var. *acuminata*, the common form in the Eastern and Transkeian Conservancies.

The examination of all the material in the South African herbaria has led us to regard var. *latifolia* and var. *intermedia* as belonging to the species *O. cymosa*, and var. *acuminata* as a distinct species which Klotzsch first named *O. acuminata*. The leaf characters which Sim gives for the first two varieties are not constant in the areas in which they are stated to occur, and we have failed to find even constant varietal characters. The var. *acuminata*: which has again been raised to specific rank can easily be distinguished from *O. cymosa* by the shape of the petals and, to a lesser degree, by the shape of the leaves. In the former the petals are "linear-spathulate" (Pl. II, figs. 2, 3), while in the latter (*O. cymosa*) the petals are "obovate-spathulate" (Pl. I, figs. 2, 3). These characters, in conjunction with its distinct distribution, all point to the tree being quite distinct from *O. cymosa*. It is the plant which Sim has figured on Plate LXXII in his work cited above.

In the "Index Kewensis" two other specific names are mentioned, viz. *O. ternata*, Gilg and *O. micrantha*, Decne. As no other descriptions of these were available in South Africa, the Director of Kew was asked for assistance. In a letter from Kew received in January, 1921, it is stated that "the name *O. ternata*, Gilg is apparently not yet published but Gilg determined a specimen himself collected by Mrs. H. Hutton at Howisons Poort near Grahamstown as this species." There can be no doubt that this is *O. cymosa*. From the description of *O. ternata*, Decne., kindly sent to us by the Director of Kew, we also have no hesitation in confirming this to be *O. cymosa*. Decaisne founded his description on *Burchell* 3592, which was not represented in any of the South African herbaria. Another species from Zululand and East Pondoland was named by Dr. Stapf as *O. radiata* but the name has not been published. As this name is now known to foresters, we do not propose to change it.

The Curator of the Botanical Department of the British Museum was good enough to furnish a scrap of *Welwitsch* 991 collected at Huilla and stated to be *O. cymosa*, but an examination of this makes it very doubtful whether *O. cymosa* does occur in tropical Africa. This has now been confirmed by Kew, as the Director writes: "*Welwitsch* 991 is not represented at Kew, but reference to the British Museum material leads us to agree that it is distinct from *O. cymosa*. It very closely resembles *O. usambarensis* (*Holst* 9115)."

Through the courtesy of the Forest Department, we have been able to give some notes on two of the species, *O. cymosa* and *O. radiata*.

Mr. J. D. Keet, District Forest Officer, Knysna, writes regarding *O. cymosa*: "Found in all forests in Knysna and Zitzikamma Districts, mostly in forests on the coastal plateau at elevations of 700 to 900 ft. approximately, less frequent in the forests on the foothills and mountain ravines and scarce in the coastal scrub. Its total range is from 300-400 to 2000 ft. approximately. It is comparatively intolerant of shade and superfluous soil moisture, and generally avoids cool slopes, ravines, low-lying ground, and streams. It is often a forerunner of the forest-like 'Keur' (*Virgilia capensis*), 'Beech' (*Myrsine melanophleas*), etc., and like the Sneezewood (*Plateroxylon utile*), it prefers the crests of ridges, rocks, and stony ground. Other conditions being suitable, it grows equally well on soils originating from Table Mountain Sandstone, Bokkeveld, Conglomerate, and old sand-dunes (?). The result is that it is found mostly on ridges on the north and west slopes near the crest of a ridge, the edge of the forest, and frequently in small groups or as isolated trees in the 'fijnbos.' It is a medium-sized tree in height and usually in bole. The thickest I have measured is 15 ft. in girth, the largest bole 32 ft., and the greatest height 70 ft. (estimated). The thicker trees are often somewhat gnarled, fluted, and buttressed, and with unsound heartwood. Where exposed to the full light it forms full-foliaged and much-branched symmetrical crowns on low stems. This is generally the case in older trees which have been a forerunner of the forest. The bark is thin, usually dark, and decorticating in scales on the lower part of stems of older trees; sometimes reddish or brownish pigment shows in the cracks and under the scales. Bark on the smaller branches smooth and grey. At a glance in the forest the bark may sometimes be confused with that of 'Quar' (*Plectronia obovata*). The wood is used in wagon work (such as felloes, spokes, long-wagon poles), fencing and telegraph poles, railway sleepers, furniture, etc. The plant coppices freely, and coppice shoots are vigorous on small and medium sized trees, but usually too dense, in which case all may die back at a height of 6-8 ft., when fewer will reach pole size in twenty to twenty-five years. On stools of trees felled in 1917 at Harkerville the coppice is now 6-8 ft. high. Seedlings occur sparingly in open space in worked-out forests and in the 'fijnbos' edge, but are absent in dense forest. Several attempts to germinate the seeds in nurseries have either failed completely or given very poor results. Seedlings and saplings in the forest are fairly fast growing. In the forest a rough and ready test by which the tree may be recognized is the strong prussic acid or almond smell of the leaves, twigs, freshly-cut bark, and sapwood. The name 'mountain hard pear' is applied to this species."

*O. radiata*. This is said to be the largest tree growing in the Ingeli Forest, and is over 12 ft. girth at breast high. The District Forest Officer, Transkeian Conservancy, reports "that the bark has a strong almond-like smell, and when placed in water turns it a blue-black colour. The wood is used for felloes." Forester Fegen, in submitting specimens of the tree, states: "This tree grows to a large size and is very plentiful in the Izinja, Ngododo, Qakama, Maseko, and neighbouring forests, and is not found elsewhere in the district. The young wood is quadrangular, usually red in colour, as are the leaves. Flowers white with a tinge of purple in small dense clusters. Fruit plum-shaped, reddish purple in colour when ripe, is eaten by birds, and I hear by natives. The tree flowers about November and the fruit is ripe about July. The wood is reported to be hard and durable, but nothing is really known about the tree here. Young trees and saplings are used by the natives." Forester Leigh gives the native name of the tree as "umpanzi," and states that sawyers confuse this with "umpanzite" (*Phyllanthus amapodensis*) as the wood is the same. It is fairly abundant in the Ntsubane Forest. Forester Leigh also states that he only knows of it growing between Umsikaba and Umzimhlava Rivers, and that it is a large semi-deciduous tree 60-70 ft. high with a girth of 10-12 ft. Old trees grow out in ribs near the ground. Used for wagon work (naves, felloes, etc.) and believed to make a good charcoal. It is plentiful in parts of the Ntsubane Forest, but on the whole scarce.

*O. acuminata*. We have not been able to obtain any special information about this species, but in the Woodbush Forest, Pietersburg, Transvaal, it is known as "roodebosje"

The distribution of the three species found in South Africa is fairly well defined.



*Stella Cowley.*

*Olinia cymosa*, Thunb.

*Olinia cymosa* extends from the Cape Peninsula along the coastal belt as far as the Kei mouth, beyond which we have no record of its occurrence. MacOwan collected the species at Somerset East, which is the only record of its inland occurrence.

*Olinia radiata*. Is found in the Pondoland forests and extends as far as Ingeli in Natal.

*Olinia acuminata*. This is an inland species. The most southern record is at Queens-town, and from there it extends to the slopes of the Drakensberg in East Griqualand to the mountainous districts of the eastern Transvaal (Barberton), and occurs again in the Woodbush Forest in the Pietersburg District. An outlier of the species is recorded from the Magaliesberg in the Transvaal.

The flowers are largely infected by a Hemiptera larva which appears to arrest their development, which is reflected in the length of the calyx-tube. In some specimens the calyx-tube is much longer than the petals, in other it equals the petals, while specimens are found in which the calyx-tube is shorter than the petals. All gradations are found even on the same specimen.

Two specimens of *O. cymosa* differ slightly from the other specimens of the species examined in that the petals are rounded at the apex and not bluntly pointed (East London, Rattray 840, Somerset East, Bolus 1772), but in specimens collected by Flanagan near the Kei mouth both forms of petals occur.

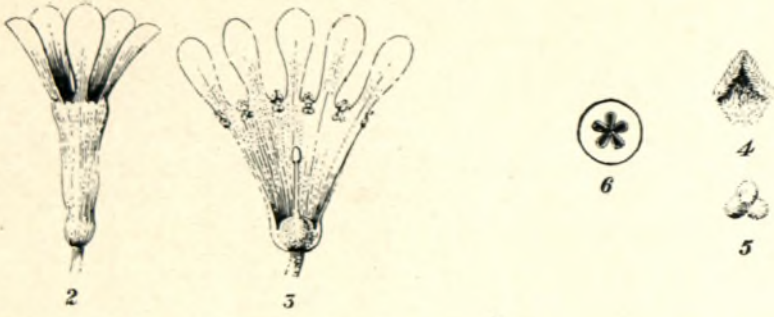
#### KEY TO SPECIES.

Petals obovate-spathulate.....	<i>cymosa</i> .
Petals linear-spathulate.....	
Inflorescence lax, about half as long as the subtending leaf.....	<i>acuminata</i> .
Inflorescence compact very much shorter than the subtending leaf.....	<i>radiata</i> .

#### *Olinia cymosa*, Thunb., "Flora Capensis," 194. (Plate I.)

*Branches* glabrous. *Leaves* 3-7 cm. long 1-3.5 cm. broad, lanceolate, obovate, elliptic, acuminate, obtuse, sometimes rounded at the apex, narrowed at the base into a distinct petiole, margins entire, sometimes wavy, glabrous, green and shiny above, paler beneath. *Inflorescence* axillary, a dense trichotomous cyme, very much shorter than the subtending leaf. *Bracts* opposite, same length as the flowers, often deciduous. *Peduncles* minutely pubescent. *Calyx-tube* 1-6 mm. long, glabrous or minutely hairy with five minute teeth. *Petals* five, inserted at the throat of the tube, about one-third the length of the calyx, rarely equalling it, spathulate, acute or obtuse at the apex, with a cluster of hairs at the base. *Scales* five incurved, alternating with the sepals, minute, obovate, densely hairy. *Stamens* five, adnate to calyx below the scales; filaments very short. *Ovary* inferior, five-celled, with three pendulous ovules from a central placentum in each cell; style subulate; stigma obtuse. *Fruit* globose, 1 cm. in diameter.—"Flora Capensis," II, 520, *Excl. var. acuminata*; Sim, "Forest and Forest Flora," 227, *Excl. var. acuminata*, pl. LXXII, fig. 14.

CAPE.—Slang Kuil, Table Mountain, October, MacOwan in *Herbarium Austro-africanum* 927; Kirstenbosch, Table Mountain, November, December, Harvey, July, Zeyher 179 and 244; August, L. Kensis in *Herb. Bolus Austro-africana* 10748; Table Mountain, August, M. Page in *Herb. Afric. Bolusianum* 1633; Devil's Peak, September, Zeyher; Paarl, August, October, Drège; Hottentot Hollands Mts., July, Zeyher; Swellendam, Voormansbosch, October, Zeyher; Grootvadersbosch, October, Pappe 130, Zeyher, 2434; Knysna, Commonage forests, August, J. D. Keet in *Herb. Forestry Dept.* 2336; May, Scott-Elliot in *Forest Dept. Herb.* 1349; Collector (?) *Forest Dept. Herb.* 1350. Port Elizabeth: September, I. L. Drège in *Herb. Albany Museum* 541; August, F. Paterson in *Herb. Africanum Bolusianum* 2320, 2319, 1155; August, Dom. Honseley in *Herb. Albany Museum*. Humansdorp: August, F. A. Rogers in *Herb. Albany Museum* 3016. Van Stadens: September, T. V. Paterson in *Herb. Albany Museum* 230. Bethelsdorp: September, T. V.



**Stella Gower.**

*Olinia acuminata*, Klotz.

*Paterson in Herb. Albany Museum* 2151. Somerset East: November, *H. Bolus* 1772. Grahams' own: "Amos's Vil," *MacOwan* 349; August, September, *E. E. Galpin in Herb. Albany Museum* 88. Howisons Poort: September, *Schönland* 818; *Zeyher* 2465. East London: October, *Geo. Rattray in Herb. Albany Museum* 840; Kei Mouth, July, *Flanagan* 2341.

***Olinia acuminata***, Klotz in "Otto and Dietr. Allg. Gartenz," IV (1836), 27 (Pl. II).

*Branches* glabrous. *Leaves* 2-3 cm. long, 0.5-1.5 cm. broad, lanceolate, elliptic, acuminate, narrowed at the base into a more or less distinct petiole, with entire margins, glabrous, green and shiny above, paler beneath. *Inflorescence* an axillary trichotomous cyme, a little shorter than the subtending leaf. *Bracts* deciduous. *Calyx-tube* 2-9 mm. long, glabrous or minutely pubescent, with five minute teeth. *Petals* five, inserted at the throat of the calyx-tube, about one-third the length of the calyx, linear, rounded at the apex, with a small tuft of hairs at the base. *Scales* five, incurved, alternating with the petals, minute, obovate, densely hairy. *Stamens* five, adnate to calyx below the scales; filaments very short. *Ovary* inferior, five-celled, with three pendulous ovules from a central placentum in each cell; style subulate; stigma obtuse. *Fruit* globose, 3 mm. in diameter.—"*Flora Capensis*," II, 520, *O. cymosa*, var. *acuminata*; *Sim*, "Forests and Forest Flora," 227.

CAPE.—Queenstown, Rockwood, Bongolo, February, *E. E. Galpin* 2500. Transkei, Kaffraria, January, *T. R. Sim* 2026; June, 2099.

NATAL.—Maclear, Pot. River Berg, March, *E. E. Galpin* 6628, 6629; Drakensberg, May, *J. Medley Wood* 4957; Giant's Castle, June, *R. E. Simons in Herb. Trans. Museum* 15965.

TRANSVAAL.—Barberton, Upper Moodies, January, *E. E. Galpin* 1275; Rustenburg, January, *Olive Nation in Herb. Bolusianum* 1906; Magalisberg, *Zeyher* 494; Woodbush, northern Transvaal, January, *O. J. O. O'Connor in Forest Dept. Herbarium* 1458; Dulstroom, January, *F. O. Noome in Herb. of Trans. Museum* 20812; Elandspruitberg, December, *R. Schlechter* 3864.

***Olinia radiata***, sp. nov. (Plate III). *Rami* glabri. *Folia* 5-8 cm. longa, 1.8-3.8 cm. lata, lanceolata, obovata, lanceolato-elliptica vel elliptica, subacuminata, apice obtusa vel aliquid subrotundata, basi angustata. *Inflorescentia* axillaria, compacta. *Pedunculus* minute pubescens. *Calyci tubus* 1.4 mm. longus, glaber vel minute pubescens. *Petala* 1.2 mm. longa, linearia, spathulata, apice acuta. *Squamae* minutae, obovatae, pilosae.

*Branches* glabrous. *Leaves* 5-9 cm. long, 1.8-3.8 cm. broad, lanceolate, obovate, lanceolate-elliptic, or elliptic, mostly subacuminate, obtuse, more rarely rounded at the apex, narrowed at the base into a more or less distinct petiole, margins entire and usually wavy, glabrous. *Inflorescence* axillary, a dense trichotomous cyme, very much shorter than the subtending leaf. *Bracts* opposite, smaller than the flowers, deciduous. *Peduncles* minutely pubescent. *Calyx-tube* 1-4 mm. long, glabrous, or minute hairy; teeth very minute. *Petals* five, inserted at the throat of the calyx-tube, 1-2 mm. long, linear-spathulate, acute, with a small tuft of hairs at the base. *Scales* incurved, alternating with the petals, minute, obovate, densely hairy. *Stamens* five, adnate to the calyx below the scales; filaments very short. *Ovary* inferior, five-celled, with three pendulous ovules from a central placentum in each cell; style subulate, stigma obtuse. *Mature fruit* globose, 1.8 cm. in diameter.

TRANSKEI: Ngadodo Forest, Ngqeleni, November, *Fegen in Herb. Forest Dept.* 2286, and in *Government Herb.* 18361; September, *Fegen in Herb. Forest Dept.* 2490. PONDOLAND: Ngadu Forest Station, May, *Van der Vyvier in Herb. Forest Dept.* 2472. Lusikisiki Dist.: Ntsubani Forest, *A. Leigh in Herb. Forest Dept.* 2051, 1553; Mpanzi, February, *A. Leigh in Herb. Forest Dept.* 1839. NATAL: Ingeli Forest Station, November, *C. W. Chilvers in Herb. Forest Dept.* 1942; Impetyne, February, *J. S. Henkel in Herb. Forest Dept.* 2382.



**Stella Gower.**

*Otinia radiata*, Phill. and Hofmeyr.

## EXPLANATION OF PLATES.

Plate I.—*Olinia cymosa*, Thunb.

Fig. 1. Portion of branch.

Fig. 2. Flower.

Fig. 3. Longitudinal section of flowers showing stamens, scales, ovary, and style.

Fig. 4. Scale.

Fig. 5. Cross-section of ovary.

Fig. 6. Stamen.

Figs. A, B, C. Types of leaves.

Plate II.—*Olinia acuminata*, Klotz.

Fig. 1. Portion of branch.

Fig. 2. Flower.

Fig. 3. Longitudinal section of flower.

Fig. 4. Scale.

Fig. 5. Stamen.

Fig. 6. Cross-section of ovary.

Plate III.—*Olinia radiata*, Phill. and Hofmeyr.

Fig. 1. Portion of branch.

Fig. 2. Flower.

Fig. 3. Longitudinal section of flower.

Fig. 4. Scale.

Fig. 5. Stamen.

Fig. 6. Stamen and scale.

Fig. 7. Cross-section of ovary.

