

African Santalaceae II: *Osyridicarpos*
(*Santalales-Studien VI*)

The African santalaceous genus *Osyridicarpos* was established in 1857 by ALPHONSE DE CANDOLLE in his monograph of the family in Prodrumus 14. The author was based thereby on two species, which had previously been reckoned for genus *Thesium*. He describes (p. 635) the relations with the related genera *Osyris* and *Thesium* as follows: “Folia et drupa *Osyridis* unde nomen; ovarium vero, placenta et praesertim perigonium diversa. In hisce magis affinis *Thesio*, sed habitus, drupa enervis perigonio superne caduco, et forma floris differunt.” [From the leaves and drupes it is *Osyris*; however, the ovary, placenta and in particular the perigonium is different. To a greater extent related to *Thesium*, but differs in habit, the upper drupe perigone without nerves and caducous, and form of the flowers]

The genus has been recognized in the sequence of HARVEY 1863, 1868, BENTHAM 1880 and HIERONYMUS 1889 and since then has been included in all floras of the distribution area and in all generic summaries of the family.

ALPHONSE DE CANDOLLE describes two species: For the first and typical species² *O. Schimperianus*, based on *Thesium Schimperianum* HOCHSTETTER ex A. RICHARD from Abyssinia, in addition *O. natalensis* from South Africa: “Rami omnino praecedentis, cui sine dubio proxima species.” [overall branching as the preceding, to which, without doubt, it is a proximal species]

Later, several other species and a variety have been established in the genus, which are summarized in Table 4.

Table 4. The Taxa of the genus *Osyridicarpos*

		Types:	
1857	<i>Osyridicarpos Schimperianus</i> (HOCHST. ex A. RICH.) A. Dc.	SCHIMPER 404	
1857	<i>Osyridicarpos natalensis</i> A. Dc.	DREGE V, b, 7 GUEINZIUS 122	Syntypen, Lectotypus: DREGE V, b, 7
1894	<i>Osyridicarpos scandens</i> ENGLER	VOLKENS 1596	
1894	<i>Osyridicarpos Kirkii</i> ENGLER	STUHLMANN 200 KIRK s. n.	Syntypen, Lectotypus: KIRK S. n.
1900	<i>Osyridicarpos linearifolius</i> ENGLER	STUHLMANN 9199 GOETZE 310	Syntypen, Lectotypus: GOETZE 310
1901	<i>Osyridicarpos linearifolius</i> ENGLER var. <i>Goetzei</i> ENGLER	GOETZE 1253	
1923	<i>Osyridicarpos Mildbraedianus</i> TH. C. E. FRIES	FRIES et FRIES 1473	

Various data on the morphology and taxonomy gave a contradictory picture from the literature: HARVEY 1863 mentions, in contrast to DE CANDOLLE, that the fruit in *O. natalensis* is crowned by the persistent complete perianth tube. BENTHAM points out in 1880 that *O. Schimperianus* and *O. natalensis* are very similar; OLIVER believes that in 1883 he has to unite the two species, but he does not find any followers.

² PILGER 1935 mentions *O. natalensis* A.DC. as typical species of the genus. This approach cannot be agreed, partly because *Thesium Schimperianum* as basionym did not possess a valid species description during its alignment under *Osyridicarpos* (since 1851).

In 1932 PETER mentioned that *O. Kirkii* is probably not specifically separate from *O. Schimperianus*, the same was suspected by CUFODONTIS 1953, and BRENAN 1954 finally synonymizes the two taxa.

These references and the meaning of the genus as a mediator between Osyrideae and Thesieae led me to a review of all types as well as extensive voucher material from these herbaria B, CBM, E, G, G-DC, K, and M und Z. This review showed, for the time being, that in the genus, as it is conceived so far, there exists only two morphologically clearly separated taxa that can be regarded as good species. The one includes *O. linearifolius* and its var. *Goetzei*, the other all other described species. The valid name for the second taxon is therefore according to the rules: *Osyridicarpos Schimperianus* (HOCHSTETTER ex A. RICHARD) ALPH. DE CANDOLLE. *O. linearifolius* is identical to *Thesium triflorum* THUNBERG ex LINNÉ F.

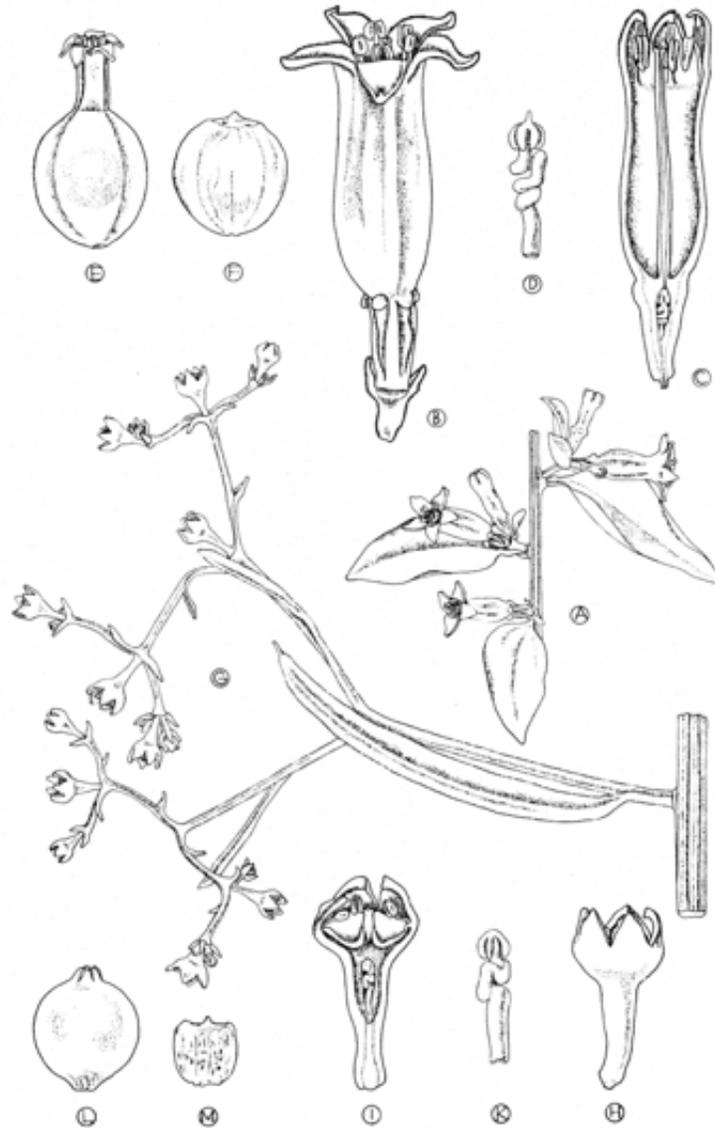
Table 5 and Figure 5 provide a comparison of the main differential features of the two species *Thesium triflorum* and *Osyridicarpos Schimperianus*, and the table provides information on variability and distribution. In the basic organization there is a close relationship between the two species, such as in wood anatomy, in stomata, in leaf position, in branching, in inflorescence, flower and placenta, and in fruits. The pollen is similar too.

Table 5. Characteristic comparison of *Thesium triflorum* and *Osyridicarpos Schimperianus*

	<i>Thesium triflorum</i>	<i>Osyridicarpos Schimperianus</i>
Pubescence	reproductive and vegetative parts completely glabrous (only poststaminal hairs available)	young axils and leaves, likewise the exterior of the tepals ± closely covered with short hairs
Inflorescence	Structure racemose, side axils dichasia, mostly one-flowered, rarely (1-)-3-flowered to 31-flowered, "carrying" bract [Tragblatt] frequently fused at the base to the axillary shoot	Structure racemose, side axils mostly one-flowered, rarely 3-(-7)-flowered dichasia, "carrying" bract [Tragblatt] free of the axillary shoot
Floral tube	very short, flask-shaped	long-cylindrical, bell-like
Disk	clearly defined with blunt lobes	not clearly defined
Style	short	long
Number of ovules	3-4	4-5
Placenta	at the apex without peg-shaped extension	at the apex with peg-shaped extension
Fruit	Drupe with short, persistent tepal tube and crown	Drupe with long, persistent tepal tube and crown
Variability within the vegetative range	Leaf form and size, leaf thickness, stature upright or climbing	Leaf form and size, leaf thickness, pubescence of all parts, stature upright or climbing
Variability within the reproductive range	Number of flowers per inflorescence, Degree of fusion of axil and bract [Tragblatt], size of flowers and fruits	Length of the flower and/or inflorescence axis, number of flowers per inflorescence, + leafy or bracteose construction of the bracts [Tragblätter], pubescence of all parts, size of the flowers and fruits, construction of the calyx glands
Geographical distribution	eastern Cape, Transvaal, Natal, Mozambique, Tanzania	southern and eastern Cape, Transvaal, Natal, Mozambique, Nyassaland, Tanzania, Kenya, Uganda, Abessinia, Eritrea

Illustration.5 *Osyridicarpos Schimperianus* (HOCHST.) ALPH. DE CANDOLLE: A-F *Thesium triflorum* THUNBERG ex LINNÉ F.: G-M

- A Partial inflorescence, 5:2
- B Flower, 15:2
- C Flower, longitudinal section, 15:2
- D Placenta, 15:1 (A-D: SCHOENLAND s. n.)
- E Fruit, 3:1
- F Endocarp, 3:1 (E, F: CHASE 5049)
- G Partial inflorescence, 5:2
- H Flower, 15:2
- I Flower, Längsschnitt, 15:2
- K Placenta, 15:1 (G-K: GOETZE 1253)
- L Fruit, 3:1
- M Endocarp, 3:1 (L-M: VERDOORN 1551)



The characteristics of *Thesium triflorum* differ greatly from those generally stated in the diagnoses of the genus *Thesium*, and especially the tribe Thesieae, they approach much more those of the Osyrideae. Table 6 gives the diagnoses of the two tribes according to BENTHAM 1880 and PILGER 1935.

Table 6 Diagnosis of *Thesieae* and *Osyrideae* after BENTHAM and PILGER

	<i>Thesieae</i>	<i>Osyrideae</i>
BENTHAM 1880	Perianthii tubus basi ovario adnatus, supra ovarium infra lobos plus minus productus, disco tamen nullo prominente vestitus. Fructus parvus, nucelus, exocarpio tenui v. vix carnosulo (excepto <i>Osyridicarpo</i>) [Base of perianth tube adnate to ovary, more or less produced above the ovary and below the lobes, however not clad with a prominent disk. Fruit small, nutlike, exocarp shallow and scarcely fleshy (except <i>Osyridicarpos</i>)	Perianthii tubus ovario adnatus, ultra ovarium haud productus, v. intus disco vestitus, lobis usque ad discum v. ovarium solutis v. rarius deficientibus (<i>Myzodendron</i> ♂). Fructus plus minus drupaceus, exocarpio carnosulo succulento, rarius minor subsiccus [Perianth tube adnate to ovary, not produced beyond the ovary, clad interiorly with a disk, disk lobes and ovary weak and rarely absent (<i>Misodendrum</i> ♂). Fruit more or less drupaceous, exocarp fleshy and succulent, rarely somewhat dry.
PILGER 1935	Perianth epigynous. Receptacle more or less beyond the ovary, usually elongated tubular, inside not clad with the disk. Ovar inferior	Perianth more or less epigynous. Receptacle not extended over the ovary or only shortly bell-shaped extended over the ovary and then inside more or less clad with the disk.

It had to be examined with this situation whether *Thesium triflorum* was perhaps to be excluded from the genus *Thesium*. This genus has its center in South Africa and is there very polymorphic. Unfortunately both a convincing taxonomic treatment and more detailed morphological investigations are missing over the more important characteristic complexes. A cursory review revealed that *Thesium triflorum* belongs to a set of related species, all of which also show all the features aberrant for the *Thesieae*, in particular the presence of a clear disk and drupe. Also individual species from other “taxic circles” show a clear disk or a drupe.

There is no single trait that is indicated in the diagnoses of BENTHAM and PILGER as typical for *Osyrideae* (and missing for *Thesieae*) that would not occur in the genus *Thesium* in South Africa. There are also close relationships in the wood anatomy and pollen formation between *Thesium* and some of the genera BENTHAM sees in *Osyrideae*. The division of a part of the *Santalaceae* into the tribes *Osyrideae* and *Thesieae* is therefore to be dropped as completely artificial.

It remains to check Table 5 again. It shows that the differential characteristics between *Thesium triflorum* and the only remaining species of *Osyridicarpos* hardly suffice for the separation of genera. However, as long as it is not yet possible to clearly understand the characteristic progressions in the genus *Thesium*, *Osyridicarpos* should remain as a monotypic genus for the time being.

In the previous work, I have already pointed out that generally small characteristic differences are used in the separation of genera within the *Santalaceae*. It therefore appears, at least for the time being, justified to maintain *Osyridicarpos* due to the construction of the tepal tube (with no species of *Thesium* is this form known) and the placenta (in *Thesium* with 2-3 [-4] ovules, never 5). However, the extremely close relationship of the two genera is beyond doubt.

Summary [translated from German]

After a detailed morphological analysis, only two of the previous taxa of the genus *Osyridicarpos* can be maintained: *O. Schimperianus* and *O. Linearifolius*, although this latter species was recognized to be identical with *Thesium triflorum*.

The now monotypic genus *Osyridicarpos* is very closely related to *Thesium*, but should be maintained for the time being, because there is still too little overview of the character progressions within *Thesium*.

The subdivision of part of Santalaceae into the tribes Osyrideae and Thesieae introduced by BENTHAM and accepted by PILGER can not be sustained because mixed combinations of features are abundant within the genus *Thesium*.

Summary [given in English]

A morphological study of the genus *Osyridicarpos* shows that there are only two taxa that can be maintained: *O. Schimperianus*, the type-species of the genus, and *O. linearifolius*, that proved to be identical with *Thesium triflorum* however.

The genus *Osyridicarpos*, now considered as monotypic, is closely allied to *Thesium*, but should provisionally be maintained, until we get more complete information of the progressions of characters within *Thesium*.

The division of a part of *Santalaceae* into *Thesieae* and *Osyrideae*, as introduced by BENTHAM and accepted by PILGER, cannot be maintained: the genus *Thesium* offers many kinds of combinations of characters that had been considered as diagnostic for the tribes.

Literature

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