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XXV.—A REVISION OF DUBOUZETIA.

T. A. SPRAGUE.

A sketch of the history of *Dubouzetia* was given in Kew Bull., 1907, No. 1, pp. 10–11, where the genus was compared with *Tricuspidaria*, and the arguments were stated for and against its being generically distinct from the latter. The results of the comparison were somewhat negative, owing to the lack of material preventing the verification of certain alleged generic characters. The matter remaining doubtful, the genera were kept separate provisionally, and two new species of *Dubouzetia* were described in No. 2, pp. 57–58.

Through the kindness of Dr. O. Lignier, Professor at the Faculty of Sciences, and Director of the Botanical Institute at Caen, we have now been able to examine the material of *Dubouzetia* contained in Vieillard's own herbarium, with the following results:—1, the confirmation of three generic characters, making it evident that *Dubouzetia* is distinct from *Tricuspidaria*; 2, the reduction of *D. parviflora*, Brongn. et Gris, to *D. elegans*, Brongn. et Gris; 3, the description of an additional new species, of which imperfect material already existed in the Kew Herbarium.

At p. 10, it was stated the "capsule of *D. elegans* is *loculicidal*, with only a very faint indication of a *septicidal* split, or none at all, so that the distinction drawn between *Dubouzetia* and *Tricuspidaria*, as regards the dehiscence of the fruit, now breaks down."

It now appears, however, in the light of the fresh material, that the condition just described for *D. elegans* is merely the *first stage* of dehiscence: the *loculicidal* split extends only a short distance (the uppermost $\frac{1}{4}$ of the capsule) and stops; and the capsule then undergoes almost complete *septicidal* dehiscence, the old fruit finally separating into open cocci, which fall off from a persistent central column about the same time as the expansion of the next set of flowers. By this time the pericarp has separated into a brittle exocarp, and a tough, almost woody, endocarp [Vieillard, 2355, in Herb. Inst. Bot. Caen]. In *D. leionema* the dehiscence of the capsule is apparently similar.

In the figure of *D. campanulata* given by Brongniart and Gris in Nouv. Arch. Mus. Hist. Nat. Paris, vol. iv. t. 13, a distinct *loculicidal* split is shown, which extends from the apex about a third of the way down the capsule, and their description of the dehiscence is as follows:—"Fructus septicide dehiscens, carpellis simul apice secundum nervum medium incomplete fissis et marginibus placentiferis disjunctis, demum omnino liberis et endocarpio lignoso incurvato ab epicarpio secedente, columna centrali haud placentifera sola persistente."

The dehiscence of the capsule of *Dubouzetia*, therefore, is *mixed*, with predominance of the *septicidal* type; that of *Tricuspidaria* on the other hand, is purely *loculicidal*.

The second generic character confirmed for *Dubouzetia* is the orientation of the carpels when all five of them are present, namely, that they are opposite the petals, as stated by Szyszylowicz; this has now been verified for *D. acuminata* and *D. leionema*, n. sp.

The third character confirmed is the presence of a spiral strophiole at the chalazal end of the seed ; this has been verified for *D. leionema*.

It may be useful to give a brief generic description of *Dubouzetia*. The one published by Szyszyłowicz in Engl. Jahrb., vol. vi. (1885), p. 453, is excellent, but he unfortunately overlooked the two additional species described by Brongniart and Gris in 1863, which necessitated a widening of the generic characters, and it is stated in his description that the stamens are inserted below the ovary and disk, instead of between them. This is apparently a typographical error, *infra* being inserted in place of *inter*. The same mistake occurs in the description of *Crinodendron* on the same page.

Dubouzetia, Panch. ex Brongn. et Gris in Bull. Soc. Bot. France, vol. viii. (1861) p. 199 ; Benth. et Hook. f. Gen. Plant. vol. i. p. 240 ; Szysz. in Engl. Bot. Jahrb. vol. vi. (1885), p. 453 ; K. Schum. in Engl. u. Prantl, Pflanzenfam. vol. iii. pars. vi. p. 6.

Sepala 5, libera, valvata. *Petala* 5, infra discum inserta, induplicato-valvata (apice excepta), basi bigibbosa. *Discus* hypogynus, 5-lobatus, pilosus, lobis 2-lobatis. *Stamina* 20-40, libera, inter discum et ovarium inserta ; antherae lineares, papillatae, apice dehiscentes. *Ovarium* 5-loculare, loculis oppositipetalis, vel 3-4-loculare ; loculi 6-13-ovulati, ovulis 2-seriatis ; stylus subulatus. *Capsula* lignoso-coriacea, septicide et incomplete loculicide dehiscens. *Semina* 1-3 in loculis, strophiole carnosae spirali chalazica instructa, albumine carnosae. *Cotyledones* planae, ellipticae vel orbiculares. Frutices erecti vel arbor, foliis alternis, pedunculis axillaribus 2-plurifloris, floribus longipedicellatis. *Crinodendron*, Baill. Hist. Pl. vol. iv. p. 198, *pro parte*, non Molina.

According to Szyszyłowicz, *Dubouzetia* is closely allied to *Crinodendron* (*Tricuspidaria*), and more distantly to *Elaeocarpus*. For further taxonomic and morphological details, Szyszyłowicz's paper should be consulted ; and for the anatomy of *D. campanulata*, Boodle's analysis in Kew Bull., 1907, pp. 11-12.

CLAVIS SPECIERUM.

- I. Pedicelli et calyces extra dense rufo- vel fulvo-tomentosi :—
 - A. Folia coriacea, mucronulata, margine revoluta 1. *campanulata*.
 - B. Folia herbacea, caudiculata, margine haud revoluta 2. *caudiculata*.
- II. Pedicelli et calyces extra pubescentes vel puberuli :—
 - A. Folia glabra vel fere glabra ; sepala circ. 1 cm. longa (exsiccata, haud explanata) 5. *elegans*.
 - B. Folia subtus appresse tomentella ; sepala ultra 1.5 cm. longa 3. *acuminata*.
 - C. Folia subtus nervis densiuscule pilosis, mesophyllo puberulo vel glabro 4. *leionema*.

1. *D. campanulata*, Panch. ex. Brongn. et Gris in Bull. Soc. Bot. France, vol. viii. (1861), p. 199, et *l.c.*, vol. x. (1863), p. 476; Ann. Sci. Nat., Sér. V. vol. i. (1864), p. 352; Nouv. Arch. Mus. Hist. Nat. Par., vol. iv. p. 34, t. 13; Schlechter in Engl. Jahrb. vol. xxxix. p. 183 (1906).

An erect shrub, 1-1.5 m. high, with large red or orange-red flowers.

NEW CALEDONIA. Near Kanala, *Vieillard*, 49; without precise locality, *Pancher*; at Ngoye, 100-300 m., *Schlechter*, 15145, 15222 (ex *Schlechter*).

2. *D. caudiculata*, Sprague in Kew Bull., 1907, p. 57.

An erect shrub, 1-2 m. high, with large white flowers. The petals in the fully developed flower are spathulate-oblong, about 3.7 cm. long and 1.7 cm. broad. Fully developed petals were not available when the species was described.

NEW CALEDONIA. Near Gatope, *Vieillard*, 2354; *Caldwell*.

3. *D. acuminata*, Sprague in Kew Bull., 1907, p. 58.

Flowers large, yellow. Since the publication of the description, a further specimen of *D. acuminata* has come to hand, in which the sepals are hardly acuminate and the filaments puberulous.

NEW CALEDONIA. Near Noumea, *Calawell*; mountain of Dzumae, *Franc*, 539.

4. *Dubouzetia leionema*, *Sprague*, sp. nov.

Ramuli pubescentes. *Folia* oblonga vel obovato-oblonga, apice rotundata, costa in apiculum producta, basi rotundata vel obtusissima, 4-8 cm. longa, 1.5-2.5 cm. lata, inconspicue repando-dentata, marginibus leviter reflexis, supra primum molliter puberula demum glabrescentia, vena media et lateralibus valde impressis, subtus venis densiuscule pilosis ceterum puberula vel glabriuscula, venis prominentibus, venulis prominulis; petioli 5-6 mm. longi, dense patule pilosi. *Stipulae* filiformes, pilosae, circ. 4 mm. longae. *Pedunculi* fere 1 cm. longi, breviter pubescentes, pilis longioribus adjectis, 2-3-flori; pedicelli 2-3 cm. longi, pilosi; bractae obsoletae (? vel caducae). *Sepala* anguste lanceolata, acuta, subacuminata, 2.6 cm. longa, circ. 5 mm. lata, extra patule sparsiuscule pubescentia, intus densiuscule appresse pubescentia. *Petala* spathulato-oblonga, 3.5 cm. longa, 1.5 cm. lata, intus prope basin pubescentia, ceterum glabra. *Discus* 2.5 mm. altus, pilosus. *Stamina* circ. 27; filamenta usque ad 1.3 cm. longa, glabra; antherae 9-10 mm. longae, minutissime puberulae. *Ovarium* circ. 4 mm. altum, tomentellum pilis longiusculis adjectis, 5-loculare, loculis 9-ovulatis intus glabris; stylus circ. 1.7 cm. longus, basi pubescens, medio puberulus, apice glaber. *Capsula* subglobosa, circ. 2 cm. diametro, sparse pubescens, primum parum loculicide, denique perfecte septicide dehiscens. *Semina* 1-3 pro loculo, ellipsoidea, circ. 7 mm. longa, nigra, nitida, strophiole spirali chalazico instructa. *Cotyledones* orbiculares, vix 4 mm. diametro; radícula cylindrica, ultra 1 mm. longa.

The specific name refers to the glabrous filaments.

NEW CALEDONIA. Summit of Mt. Ouatendé, near Gatope, Vieillard, 2353.

5. *D. elegans*, Brongn. et Gris in Bull. Soc. Bot. France, vol. x. (1863), p. 476; Nouv. Arch. Mus. Hist. Nat. Par. vol. iv. p. 36.—*D. parviflora*, Brongn. et Gris in Bull. Soc. Bot. France, l.c.

A shrub or tree, with medium-sized yellow flowers. Vieillard, 166, on which *D. parviflora* was founded, is evidently a young state of *D. elegans*, with slightly larger leaves than usual.

NEW CALEDONIA. Near Balade, Vieillard, 224, 166; near Wagap, and near Kanala, Vieillard, 50, 2355.

XXVI.—NEW ORCHIDS: DECADE 30.

291. *Bulbophyllum dichromum*, Rolfe; a *B. fuscopurpureo*, Wight, sepalis lateralibus apice connatis, petalis brevibus ciliatis nec longe setiferis differt.

Rhizoma validum. *Pseudobulbi* ovoideo-oblongi, obscure tetragoni, circa 5 cm. longi, monophylli. *Folia* petiolata, coriacea, oblonga, obtusa, circa 17 cm. longa, 4.5 cm. lata; petiolus 5 cm. longus. *Scapus* suberectus, circa 25 cm. longus, basi vaginis oblongis subobtusis tectus; racemus laxis, circa 12-florus. *Bractee* ovato-oblongae, acutae, 8–10 mm. longae. *Pedicelli* subgraciles, 2.5–3 cm. longi. *Flores* speciosi, vitellini, labello purpureo. *Sepalum* posticum ovato-oblongum, subacutum, concavum, 2 cm. longum; sepala lateralibus lanceolata, acuta, apice connata et laeviter recurva, facie minutissime puberula. *Petala* patentia, oblique triangularia, breviter acuminata, ciliata, 4 mm. longa, basi latissima, columnae pedi adnata. *Labellum* carnosum, trilobum, 8 cm. longum; lobi laterales oblongi, incurvi, 3 mm. longi, apice denticulati; lobus intermedius recurvus, late oblongus, obtusus, convexus, minutissime papillosus, 5 mm. longus; discus bicarinatus, profunde canaliculatus. *Columna* latissima, 5 mm. longa, alis crassis acutis; pes 5 mm. longus.

ANNAM. Micholitz.

A very distinct and striking species, introduced by Messrs. Sander & Sons; flowered in the Royal Botanic Garden, Glasnevin, in February last, when it was sent to Kew for determination by Mr. F. W. Moore, A.L.S. The contrast between the dark purple lip and the bright yellow of the rest of the flower is very striking. A figure has been prepared for the Botanical Magazine.

292. *Bulbophyllum tridentatum*, Rolfe; ad *B. mandibulari*, Reichb. f., accedit, sed sepalis lateralibus attenuatis angustis, petalis brevibus, et columnae brachiis tridentatis differt.

Folia elliptico-oblonga, subobtusata, coriacea, circa 15 cm. longa, 4.5 cm. lata; petiolus 2.5 cm. longus. *Scapi* 2.5–4 cm. longi, 2–3-flori. *Bractee* ovato-oblongae, breviter acuminatae, basi tubulosae, 1.2–1.8 cm. longae. *Pedicelli* 3–4 cm. longi. *Sepalum* posticum ovato-lanceolatum, acuminatum, basi concavum, 2.5–3 cm. longum; sepala lateralibus attenuata, lineari-oblonga, acuta, 4.5–5 cm. longa. *Petala* ovata, acuta vel subobtusata, 1.2 cm. longa. *Labellum*