

- Homophylla; folia pallide viridia, omnia distincte petiolata basi rotundata vel cuneata; calycis feminei segmenta capsula aequilonga:—
- Indumentum pannoso-floccosum pilis longe stipitatis 10. *C. Brocchiana*.
- Indumentum nunc velutinum nunc adpressum pilis sessilibus vel subsessilibus 10b. „ var. *intermedia*.
- Heterophylla; folia saturate viridia, inferiora distincte petiolata basi subhastata, superiora brevius petiolata basi obtusa vel cuneata; calycis feminei segmenta capsula breviora:—
- Indumentum adpressum pilis sessilibus 11. *C. senegalensis*.
- Indumentum pannoso-floccosum pilis stipitatis 11b. „ var. *lanigera*.

10. **Chrozophora Brocchiana**, *Vis.* Pl. quaed. Aegypt. ac Nub. p. 39, t. 8, fig. 2 [icon. ob indumenti praetermissionem imperf.] (1836). Hornotina herbacea, diutina fruticosa, prostrata; folia omnia ambitu similia, distincte petiolata, pallide viridia; calycis feminei segmenta capsulis aequilonga.—Broun, Cat. Sud. Fl. Pl. p. 72 (1906); Pax et K. Hoffm. in Engl. Pflanzenr.

IV. 147. vi. p. 20, partim (1912). *Tournesolia Brocchiana*, O. Kuntze, Rev. Gen. Pl. ii. p. 621 (1891).

This species is widely spread throughout dry North Africa from Mauretania and Senegal to the Red Sea littoral; it is abundant in Nubia and the Sudan but is rare further west. In Kordofan the seed of this plant is the source of a non-drying, or 'sweet' oil (*Tippets*).

a. genuina, Müll.-arg. in DC. Prodr. xv. 2, p. 749 ampl. (1866). Folia utrinque pilis stellatis longe radiatis æ stipitatis dense pannoso-floccosa, nunc majuscula parum 3-loba nunc minora subintegra.—*Chrozophora Brocchiana*, Schweinf. Pl. quaed. Nilot. p. 9, t. 5b (1862), et Beitr. Fl. Aethiop. pp. 35, 262 (1867). *C. Brocchiana*, var. *Hartmanni*, Schweinf. l.c. t. 5 (1862); Müll.-arg. l.c. partim et quoad spec. Hartmann tantum (1866); Prain in Dyer Fl. Trop. Afr. vi. 1, p. 838 (1912). *Croton macrocalyx*, Ehrenb. ex Schweinf. l.c. (1862).

MAURETANIA. Atar, *Chudeau!*

SENEGAL. Senegambia: Podar, *Mathieu!* Upper Senegal: Timbuctoo; Belia, *Chudeau!* without precise locality, *Lécard*, 20!

NORTHERN NIGERIA. Bornu, *Oudney!*

SUDAN. Kordofan: Bareis, on the Darfur frontier, *Pfund*, 492! near Goghan, *Broun!* without precise locality, *Colston*, 87! *Muriel*, S/106! *Tippets!*

NUBIA. Dabbeh, *Ehrenberg!* Nedi, *Brocchi!* Bayuda, between Dabbeh and Khartum, *Hartmann!* Matamma; near Ssagadi, *Schweinfurth*, 835! near El Bak, between Berber and Suakin, *Schweinfurth*, 836! 839! without precise locality, *Rifaud!*

This variety occurs in two states; one, with larger leaves, usually has these more or less distinctly 3-lobed; the other has smaller and subentire leaves.

β. intermedia. Folia nunc utrinque pilis stellatis longe radiatis sessilibus velutina, nunc pilis stellatis breve radiatis sessilibus supra parcius vestita subtus dense adpresse cinereo-tomentosa.—*Chrozophora senegalensis*, Baill. Étud. gén. Euphorb. p. 322 partim et quoad Kotschy 25 tantum (1858); Müll.-arg. l.c. partim et quoad Kotschy 25 tantum (1866); Schweinf. Beitr. Fl. Aethiop. p. 262 (1887); Broun, Cat. Sud. Fl. Pl. p. 72 (1906); Pax et K. Hoffm. l.c. p. 21 partim et quoad Kotschy 25 ac Chevalier 1302 tantum (1912); nec A. Juss. *C. Brocchiana*, Prain, l.c. (1912); vix Vis.

SENEGAL. Upper Senegal: Timbuctoo, *Chevalier*, 1302! Reza, *Chudeau!* Badiagan, *Chudeau!*

SUDAN. Kordofan: Abu Gerad, *Kotschy*, 25! near Goghan, *Broun*, 887! without precise locality, *Colston*, 98! Darfur, *Purdy*, 39!

This variety occurs in two somewhat different states; one with

long-rayed hairs which approaches closely to typical *C. Brocchiana*, the other with short-rayed adpressed hairs which approaches closely to typical *C. senegalensis*.

11. **Chrozophora senegalensis**, *A. Juss.* ex Spreng. Syst. Veg. iii. p. 850 (1826). Hornotina herbacea, diutina fruticosa prostrata; folia supra saturate viridia glabrescentia vel glabra, ambitu dissimilia, inferiora distincte petiolata basi subhastata, superiora minora, brevius petiolata, basi rotundata vel cuneata; calycis feminei segmenta capsulis breviora.

This species is widely spread throughout western dry North Africa from Mauretania to Northern Nigeria; it has also once been met with in Nubia.

a. genuina. Folia subtus pilis stellatis breve radiatis sessilibus dense adpresse incano-tomentosa.—*Croton senegalense*, Lamk Ency. Meth. ii. p. 212 quoad plantam citatam sed descr. excl. (1786); Willd. Sp. Pl. iv. 1, p. 554 (1805); Geis. Prot. Monogr. p. 45 (1807); *A. Juss.* Tent. Gen. Euph. p. 28 (1824). *Chrozophora senegalensis*, Presl. Epimel. Bot. p. 213 (1849); Baill. Étud. gén. Euphorb. p. 322, partim et quoad Adanson 156 tantum (1858); Baill. Adansonia i. p. 67 (1860); Müll.-arg. in DC. Prodr. xv. 2, p. 749 pro parte maxima sed Kotschy 25 excl. (1866); Pax et K. Hoffm. in Engl. Pflanzenr. IV. 147. vi. p. 21, pro parte maxima sed Kotschy 25 et Chevalier 1302 excl. (1912); Prain in Dyer, Fl. Trop. Afr. vi. 1, p. 837 (1912). *Tournesolia senegalensis*, O. Kuntze, Rev. Gen. Pl. ii. p. 621 (1891).

MAURETANIA. Between Biark and Tin-Amatou, *Chudeau!* Ksar-el-Barka, *Chudeau!* Tamra, *Chudeau!* Guimi, *Chudeau!* Foum-Joul, *Chudeau!*

SENEGAL. Senegambia: Walo and Cayor, *Heudelot*, 419! Walo, *Perrottet*, 738! Dagana, *Leprieur*, 1194! Bakel, *Collin*, 101! between Bakel and Fangalla, *Carrey*, 18! Dakar, *Thiebaut*, 191! Galam, *Adanson*, 61! Kaolakh, *Kaichinger*, 48! without precise locality, *Adanson*, 156! Upper Senegal: Timbuctoo; Babog, *Chudeau!* marshes of Sienso, near San, *Chevalier*, 1051! Bongoumi, *Chevalier*, 687!

DAHOMY. Alacora Mountains; near Jomba, 1200-2000 ft., *Chevalier*, 24078!

NORTHERN NIGERIA. Gando; Saie, 560 ft., *Barter*, 3444! Katagum district, *Dalziel*, 205!

SUDAN. Bagirmi: Corbol, *Chevalier*, 9271! Makénia, *Chevalier*, 9671! Barambo, *Chevalier*, 9946! Wadai: Fort Lemy, *Chevalier*, 10362!

β. lanigera, *Prain* l.c. (1912). Folia subtus pilis stellatis longe radiatis ac stipitatis dense pannoso-floccosa.—*Chrozophora senegalensis*, var. **β.**, Desv. ex Baill. Étud. gén. Euphorb. p. 322 (1858). *Chrozophora plicata*, Baill. Adansonia, i. p. 67 partim

(1860); non A. Juss. *Chrozophorae Brocchianae forma forsan propria*, Schweinf. Pl. quaed. Nilot. p. 10 (1862). *Chrozophora Brocchiana*, a. *Hartmanni*, Müll.-arg. l.c. pro parte maxima (1866); non Schweinf. *Croton lanigerum*, Perr. ex Prain l.c. (1912).

SENEGAL. Senegambia: Dagana, *Leprieur*! near Richard-Tol, *Lelièvre*! Dakar, *Chevalier*, 2620! 15787! Tomboukana, *Chevalier*, 3464! Cape Verde; between Kan and Wochan, *Brunner*, 108! Galam, *Adanson*, 60! without precise locality, *Perrottet*, 42! 735! *Roger*! *Richard*!

DAHOMEX. Without precise locality, *Gironcourt*, 112.

NORTHERN NIGERIA. Borgou: near Fakoum, *Barter*, 812! Nupe: Jeba, *Barter*!

NUBIA. Berber, *Acerbi in Herb. Delessert*!