

PACIFIC CAPSULAR MYRTACEAE 12

Tristania (New Caledonia)

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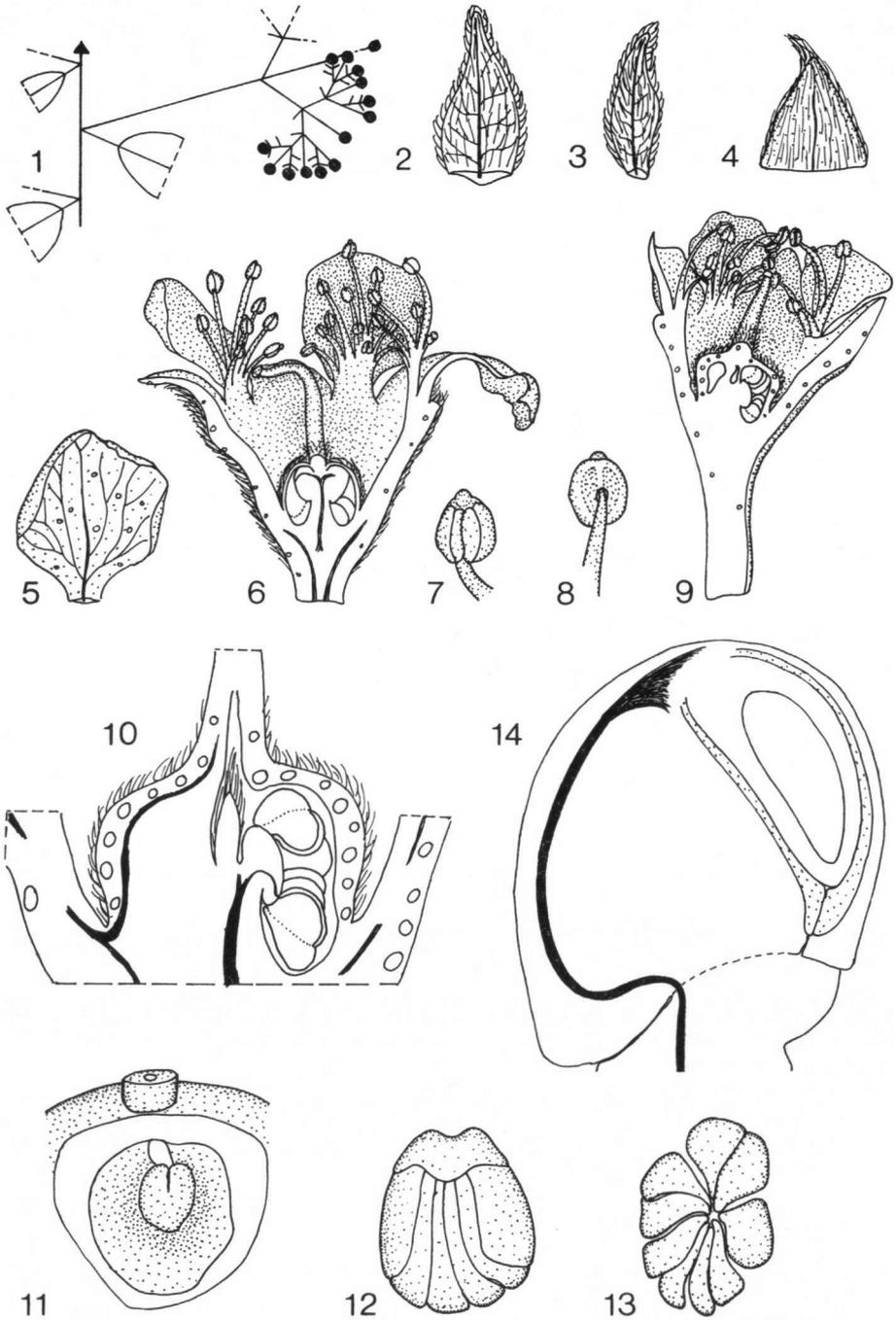
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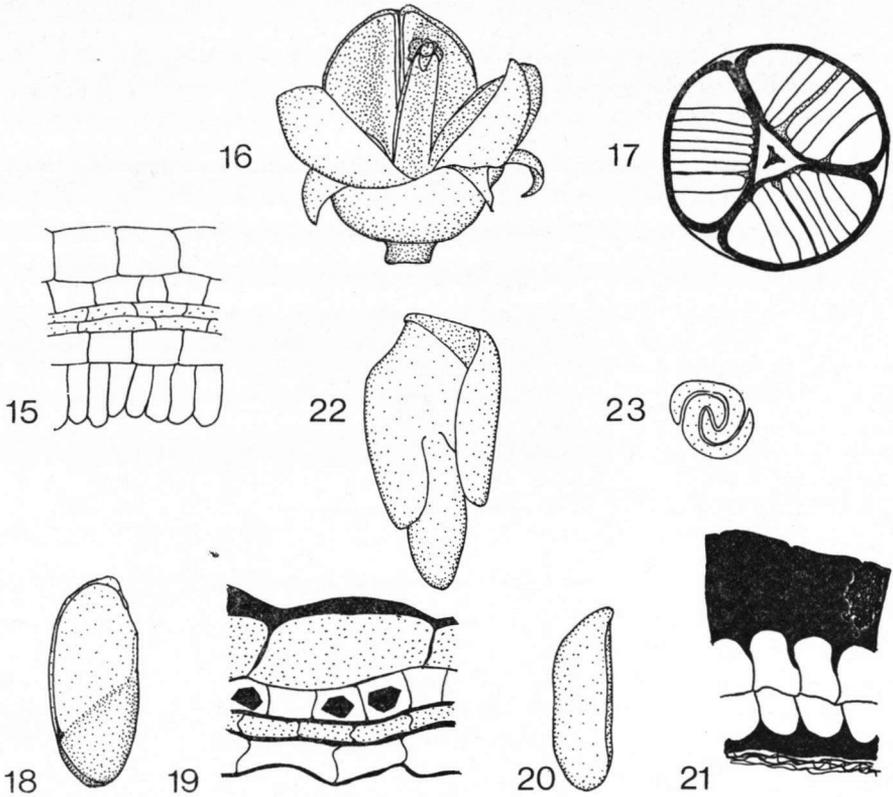
INTRODUCTION

Tristania R. Brown, Aiton's Hortus Kewensis (2nd Ed.) 4 (1812) 417, was established with three species — *T. neriifolia*, *T. laurina*, and *T. conferta*. A number of other species have since been added to the genus and a recent study (Wilson, 1971) has shown that the three original species belong to three different groups and further that these groups are sufficiently different to warrant their separation at the generic level. All of the New Caledonian species belong to the *Tristania laurina* group. It has not yet been decided which of the groups should retain the original generic name, but if the *T. laurina* group is not selected the name *Tristaniopsis* Brongniart et Gris, Bull. Soc. Bot. Fr. 10 (1863) 371, would become available for it. Six species are currently recognised in New Caledonia where they mostly grow at low elevations in scrub and forest on ultrabasic rocks. Species of the same group are found in Australia, New Guinea, Borneo, and probably elsewhere in Malasia.

DESCRIPTION OF TRISTANIA (NEW CALEDONIA)

Shrubs or trees; branching monopodial; young stems dark, older stems paler and smooth; bud scales wanting; leaves leptophyllous to microphyllous, dorsiventral, alternate with a 2/5 phyllotaxy, a more or less pronounced ridge extending from below each leaf insertion through several internodes; young parts densely clothed with short or long, white or reddish hairs, older parts glabrous or remaining pubescent. *Inflorescences* (fig. 1) simple to compound dichasial cymes or reduced to a single flower, in upper leaf axils on branches each terminated by a dormant vegetative bud; bracts adnate to the axes they subtend sometimes as far as the next node (fig. 1); bracts and bracteoles lanceolate, acute (figs. 2, 3). *Flowers* either with all parts pubescent except distal parts of stamens and style, or with ovary, style, inner surface hypanthium, filaments, and inner petal surfaces glabrescent or glabrous; sepals (fig. 4) 5, triangular, acute; petals (fig. 5) 5, more or less orbicular, orange, yellow, or white; stamens (figs. 6, 7) in 5 fascicles opposite the petals, rarely single, fused for up to half their lengths, with 2—70 stamens per fascicle, in one to several series, the outermost median stamens about as long to twice as long as the petals, the lateral and inner stamens much shorter; anthers (figs. 8, 9) small, dorsifixed, versatile, with a single prominent oil gland at the tip of the connective. *Ovary* (figs. 6, 9, 10) semi-superior to superior, three-locular; style (figs. 6, 9) about as long as the longest stamen, not set into the top of the ovary; stigma small, convex, placentas apical in the inner angles of the locules (fig. 6) or more or less axile (*T. glauca*, figs. 9, 10), in the latter case a stylar





Figs. 1—23. *Tristania* R. Br. — 1. *T. glauca*. Inflorescence. Dormant vegetative bud at tip of branch; nat. size — 2. *T. callobuxus*. Bract; X₃. — 3. *T. callobuxus*. Bracteole; X₃. — 4. *T. callobuxus*. Sepal; X₅. — 5. *T. callobuxus*. Petal; X₅. — 6. *T. callobuxus*. L. S. flower; X₅. — 7. *T. callobuxus*. Anther, ventral view; X₁₅. — 8. *T. callobuxus*. Anther, dorsal view; X₁₅. — 9. *T. glauca*. L. S. flower; X₅. — 10. *T. glauca*. L. S. ovary; X₁₅. — 11. *T. glauca*. View into locule with ovules removed. Opening into styler canal is just above placenta; X₁₅. — 12. *T. callobuxus*. Placenta and ovule group from one locule; X₁₅. — 13. *T. glauca*. Ovule group from one locule; X₁₅. — 14. *T. guillainii*. L. S. ovule, inner integument stippled; X₃₀₀. — 15. *T. capitulata*. Cell detail T.S. ovule, inner integument stippled; X₃₀₀. — 16. *T. callobuxus*. Dehisced capsule; X₃. — 17. *T. callobuxus*. T.S. undehisced capsule, wings of fertile seeds stippled; X₅. — 18. *T. capitulata*. Fertile seed; X₅. — 19. *T. capitulata*. Cell detail T.S. testa fertile seed, pigmented cells stippled; X₃₀₀. — 20. *T. capitulata*. Sterile seed; X₅. — 21. *T. glauca*. Cell detail T.S. testa sterile seed; X₁₇₅. — 22. *T. capitulata*. Embryo; X₁₅. — 23. *T. capitulata*. T.S. cotyledons; X₁₀. (*Tristania glauca*: McKee 20201, McKee 23839 (fig. 21); *T. callobuxus*: WELTU 12230, WELTU 9634 (figs. 8, 9), McKee 25585 (fig. 17); *T. capitulata*: McKee 29143, McKee 28863 (fig. 19); *T. guillainii*: McKee 28014).

canal is present with an opening into each locule just above the placenta (figs. 10, 11), the pubescent residual apex of the flower free within the stylar canal (fig. 10); ovules 3—15 per locule in an arc (fig. 12) or a circle (*T. glauca*, fig. 13) on the placenta, anatropous (fig. 14), with the raphe strongly winged between the vascular strand and the inner integument; in the median transverse plane of the ovule (fig. 15) each integument and the nucellus 2-layered; all ovules potentially fertile. In the mature fruit (figs. 16, 17) the capsule exerted beyond the rim of the hypanthium; longitudinal splits through the septae below the placentas result in a distinctive central column terminated by the placentas and composed of axial flower tissue and the inner angle of each locule (fig. 16). *Fertile seeds* (fig. 18) 0, 1, or 2 per locule, winged, testa (fig. 19) derived from both integuments; outer layer of outer integument with thickened outer walls and brown contents; inner layer of outer integument with one to several prismatic crystals per cell; outer layer of inner integument brown, flattened tangentially and with the inner and outer walls of each cell moderately thickened; inner layer of inner integument colourless. *Sterile seeds* (fig. 20) consisting of the outer integument and the crushed remnants of the inner integument (fig. 21), the outer and inner layers of the outer integument with heavily thickened outer and inner walls respectively. *Embryo* (fig. 22) straight; cotyledons broad, erect, strongly cordate and overlapping and partly enfolding each other (fig. 23); hypocotyl sheath wanting; oil glands present in the embryo.

DISCUSSION

The placing of the *Tristania* group to which the New Caledonian species belong in the subtribe *Metrosiderinae* is questionable as the group differs from typical *Metrosideros* (Dawson, 1976) in a number of respects — alternate leaves, fascicled stamens, few ovules in a single ring or arc on the placenta, distinctively winged ovules and seeds, the central column in the fruit, and the broad, cordate, overlapping cotyledons.

REFERENCES

- DAWSON, J. W. 1976. *Blumea* 23: 7—11.
WILSON, P. G. 1971. Studies in the systematics of the genus *Tristania* R. Br. B.Sc. Honours Thesis. Univ. of N.S.W. Sydney.