ON THE DELIMITATION BETWEEN ARISTOTELIA L'HÉR. AND SERICOLEA SCHLTR. (ELAEOCARPACEAE)

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INTRODUCTION

The present investigation arose from a discussion between Dr van Steenis and Mr C. T. White in July 1950 concerning a plant from North Queensland, collected by Mr L. J. Brass. The specimen was pre-identified as an *Aristotelia* but also showed similarity with the Papuan genus *Sericolea*. The need was felt to investigate the distinction between the two genera. Mr White was very keen to investigate the problem himself but this was unfortunately prevented by his untimely death, only two weeks after this discussion.

The problem has rested ever since, until in 1963 I had to verify the distinction between the two genera for my work on the Pacific flora, a work executed under a grant from the Netherlands Organisation for the Advancement of Pure Research (Z.W.O.).

I soon became aware that it was inevitable to examine the closely allied genera *Aceratium* and *Vallea* as well. A comparison with other *Elaeocarpaceae* has also been made where it seemed appropriate. A review is given of the value and constancy of the characters. Diagnostic descriptions of *Aristotelia* and *Sericolea* are here presented and a key for the distinction of the opposite-leaved *Elaeocarpaceae*. Finally the plant-geographical importance of the family is briefly discussed.

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HISTORY AND NOMENCLATURE OF ARISTOTELIA AND SERICOLEA

Aristotelia was first described by L'Héritier from Chile in 1786 (not 1784; *fide* Fl. Mal. I, 4, 1954, cxcvii) as a monotypic genus. Some species were later described from New Zealand, Tasmania, and New South Wales, sometimes under other generic names, such as the synonymous *Friesia* DC. On the other hand, from Queensland, New Guinea, and the New Hebrides species were described under *Aristotelia* which in the course of time have all been transferred to other genera.

Sericolea was founded by Schlechter in 1916 to accomodate 6 New Guinea species, including *Aristotelia gaultheria* F. v. M. In the same paper he reduced *Aristotelia braithwaitei* F. v. M. to *Aceratium* DC.

It is not surprising that F. v. Mueller had accomodated these species in *Aristotelia* in view of the close relationships which exist between the three genera just mentioned. Especially as regards the Papuan plant, Von Mueller himself was not quite convinced that *Aristotelia* was the correct generic disposition.

Various authors have subsequently added to the number of *Sericolea* species, all from New Guinea; many of these were originally described under a wrong genus and family: *Hormopetalum* Lauterb. 1918 *(Rut.)*; *Mischopleura* Wernh. 1916 *(Eric.)*; *Pyrsonota* Ridl. 1916 *(Saxifr.)*.

A short nomenclatural note must be added concerning *Hormopetalum* and *Mischopleura*. Lauterbach (Bot. Jahrb. 55, 1918, 257) published *Hormopetalum* as a new genus belonging to the *Rutaceae* with reference to a fuller description to follow in Nova Guinea volume 12. In the meantime he provided a key to three species (in German), a Latin description of one species, and added a generic diagnosis (in German). A year later Schlechter pointed out that *Hormopetalum* was congeneric with *Sericolea*, for which reason Lauterbach's publication in Nova Guinea was obviously suppressed. O. C. Schmidt (1924, 152) considered *Hormopetalum* a nomen as well as the two species which were not provided with a full Latin description. This is nomenclaturally erroneous, as was already pointed out by A. C. Smith (1944, 104).

Mischopleura was first published in a paper by Ridley in Hooker's Icones 31 (June 1916) t. 3059 as a new genus of *Ericaceae*. The description was obviously copied from Wernham by reference to a then unpublished account, and by the fact that Wernham was cited as the author of genus and species. Wernham's description of *Mischopleura* appeared two months later in Trans. Linn. Soc. Bot. 9 (1916) 99. Therefore, the correct citation is: *Mischopleura* Wernham in Ridley, Hook. Ic. 31 (1916) t. 3059.

DISCUSSION AND EVALUATION OF CHARACTERS

General habit

There is little difference in habit between *Aristotelia* and *Sericolea*. Both are shrubs or small trees, rarely attaining a height of 10 metres. *Sericoleas* are sometimes reported as epiphytes but this is nothing special for undergrowth components of the dense everwet montane rain-forest and mossy forest on ridges and crests. Prostrate and ericaceous growth-forms occur in species of both genera.

Phyllotaxy

Together with *Aceratium*, *Sericolea* and *Aristotelia* are unique in the family in having normally opposite leaves. Occasionally specimens are found in which, besides the ordinary condition, some leaves are subopposite or in whorls of three. In a few species of *Elaeocarpus*, *Sloanea*, and *Tricuspidaria* (*Crinodendron*) opposite, subopposite, and spiral leaf arrangement may occasionally be found on one and the same plant.

Leaves

The leaves of *Aristotelia* and *Sericolea* differ in a number of points.

Aristotelia has as a rule long-petioled, herbaceous or submembranous leaves. The only exception is *A. fruticosa* Hook. *f.* which has short-petioled, more or less coriaceous leaves. *Sericolea* has always short-petioled to subsessile leaves, which are either stiffly coriaceous or thin but firmly pergamentaceous in texture.

The lamina in *Aristotelia* is ovate to lanceolate and, *A. fruticosa* excepted, much larger than in *Sericolea*. In the latter genus the leaves are generally smaller and are either oblong-ovate with a long-acuminate driptip or more rarely elliptic and obtuse. The venation is also of diagnostic value. *Aristotelia* is widely nerved, the lateral nerves looped and joined; as the lowermost pair of nerves is opposite and thicker than the others, the lamina is subtriplinerved. *Sericolea* is densely nerved, the lateral nerves running straight to the margin. Within the family this nervation pattern is almost unique, being found otherwise only in *Aceratium sericoleopsis* v. Balgooy from Queensland.

In both genera the leaf margins are denticulate to serrate, very rarely entire.

In leaf characters *Aristotelia* comes close to *Vallea* and to certain species of *Aceratium*.

Indumentum

All species of *Sericolea* are covered with sericeous hairs, which have a silvery or golden shine. Some species may be nearly glabrous, especially on the older parts, but some appressed hairs are always present, at least on the yong parts, on the midrib on the underside of the leaf, and on the inflorescence.

Aristotelia is patently soft-pubescent; besides, the species of this genus are generally more glabrous. The indumentum of *Aristotelia* agrees with that of *Vallea*.

Sericeous hairs are also found in some species of *Elaeocarpus* and *Aceratium*. Especially some of the Australian species of *Aceratium* show a deceptive resemblance to *Sericolea* in the sterile state as pointed out in another paper (v. Balgooy 1963, 71). In general, however, *Aceratium* is densely tomentose or even hispidulous, the hairs being much coarser and mostly of a rusty or reddish colour.

Stipules

Though, according to the literature, stipules should be wanting in both genera, I found occasionally small filiform caducous stipules. This character appears to be taxonomically unimportant in *Elaeocarpaceae*, as, for instance in *Vallea*, large reniform stipules may be present or wanting on the same plant.

Inflorescence

The inflorescence is in both genera axillary and consists in most species of a cyme, raceme, or thyrse of few decussate flowers. In some species the flowers may be solitary and in *A. serrata* (Forst.) Oliv. they form a compound many-flowered panicle.

Flowers

In both genera the flowers are 4—5-merous and generally hermaphrodite. Only the two New Zealandic *Aristotelia* species are aberrant in being dioecious. In the ♂ plants of these only the androecium is developed, whereas in the ♀ plants the stamens also develop to various degrees, but are apparently non-functional; in ♀ flowers the petals are often reduced in size.

Calyx

The sepals are valvate and ovate, acute to obtuse, hairy outside. Inside they are always glabrous in *Aristotelia*, minutely puberulous in most species of *Sericolea*. In the latter genus they have moreover a more or less distinct, longitudinal, median ridge inside.

Corolla

The aestivation of the petals is induplicate-valvate in *Sericolea* and slightly cochleate in *Aristotelia* (not quincuncial as stated by Szyszylowicz, 1885, 447). In shape they vary from broadly to narrowly obovate, and from nearly entire to deeply three-lobed. In most species of *Aristotelia* (the only exception being *A. fruticosa* Hook. *f.* from New Zealand) the petals are thinner than in *Sericolea* where they are more or less fleshy. In *Sericolea* there is in most species a patch of hairs inside at the base of each petal. The structure of the corolla again links *Aristotelia* with *Vallea*, whereas the corolla type of *Sericolea* is otherwise only found in *Elaeocarpus bilobatus* Schltr. *Aceratium* has a distinctly different corolla; here the petals are much larger, often fimbriate or deeply lobed, and densely hairy at the base inside and along the margin. The marginal hairs are interwoven so that the petals remain often firmly coherent in the lower half.

Disk

As in all genera of the *Elaeocarpaceae* a disk is present. Its structure and place offer good diagnostic characters between *Sericolea* and *Aristotelia*. Also in other genera of the family they are important for generic distinction. In *Sericolea* it is an extrastaminal ring with thick episepalous lobes before which the stamens are inserted. Sometimes some smaller additional disk lobes are developed between the larger ones. This type of disk is also found in some *Elaeocarpus* species but in that genus the disk is puberulous, whereas in *Sericolea* it is always glabrous.

In *Aristotelia* the disk is also grown out into episepalous lobes, though less distinct; besides, it is expanded between the insertion of the stamens and the base of the ovary. So the stamens are rather inserted on the disk than inside it as in *Sericolea*. This situation is found in a modified form in *Vallea*, but here the disk is flat and not lobed. With the exception of the Tasmanian *A. peduncularis* (Labill.) Hook. *f.* the disk is glabrous in *Aristotelia*.

Aceratium has an annular high disk, grooved but not lobed, with the stamens inserted partly inside of and partly on the disk. In most species of this genus the disk is densely hairy.

Stamens

The arrangement and structure of the stamens in the two genera are very useful taxonomically. The most common arrangement is in groups of three stamens before each sepal. The central one of these is in both genera placed nearest to the centre of the flower; in *Sericolea* it is, moreover, larger than the outer two. There are, however, a number of variations on this pattern. The inner whorl of episepalous stamens is always present but the number of outer stamens may vary. They are in some cases reduced to staminodes or may be completely lacking as is for example the rule in *Aristotelia fruticosa*. In some species of *Sericolea* there may be an inner whorl of episepalous stamens and an outer epipetalous one. Occasionally also extra stamens are found.

The arrangement of the stamens in *Vallea* is of the *Sloanea* type, *viz* numerous stamens inserted irregularly upon the disk. In *Aceratium* the number of stamens is also low, generally about 15. They are usually inserted more or less in a single whorl, partly on, partly inside of the disk, sometimes indistinctly arranged in episepalous groups of three. Though a high number of stamens is the common situation in *Eleaocarpus*, some species have a small number of stamens arranged in the same way as in *Sericolea* and *Aristotelia*.

The filaments of *Aristotelia* are slightly curved inwards and taper towards the anther. They are in all species softly pubescent. In *Sericolea* the filaments are filiform, straight or slightly sigmoid, often glabrous or only minutely puberulous and not tapering towards the anther. *Vallea* has the same type of filament as *Aristotelia*, whereas *Aceratium* has long, threadlike, strongly sigmoid filaments. *Aceratium megalospermum* and *A. sericoleopsis* have tapering filaments as *Aristotelia*, as I have pointed out in another paper (v. Balgooy, 1963).

The shape of the anthers is one of the best distinguishing characters between *Sericolea* and *Aristotelia*, like in the *Elaeocarpaceae* in general. *Aristotelia* has lanceolate anthers, cordate at the base. Both cells dehisce by a lateral, subapical slit which may reach far downwards, to about halfway the anther, but they never unite across the top. In *Sericolea* the anthers are mostly narrowly obovate and either emarginate or broadly truncate at the top; the two cells dehisce by a common apical slit across the top which gives the anther a bilabiate appearance at maturity; the outer lip is often larger than the inner one. In type of dehiscence of the anthers *Aristotelia* agrees with *Sloanea* and *Vallea*, but in

Sloanea there is a sterile continuation of the connective beyond the apex and the slits extend farther downwards; in *Vallea* the anthers open by pores rather than by slits. The type of dehiscence of *Sericolea* is found in most of the other *Elaeocarpaceae*, closest resemblance being found with *Elaeocarpus* and *Aceratium*. But *Aceratium* has linear anthers, hispidulous at the apex, and in *Elaeocarpus* the apex of the anthers possesses two unequal lips, the largest of which is often protruded into an awn.

Pistil

The ovary is nearly always 2-celled in *Sericolea* and 3—4-celled in *Aristotelia*. Though as a rule this is a very constant character, I have occasionally found 3 cells in *Sericolea* and 2- and 5-celled ovaries in *Aristotelia*. In both genera the ovary is glabrous except in *A. australasica* F. v. M. in which it is laxly pubescent.

The style is short and subulate, in *Sericolea* sometimes curved backwards at the top. In some species of *Aristotelia* the style is more or less deeply cleft into as many parts as there are ovary-cells, thus resembling the condition in *Vallea;* in others the style is as in *Sericolea*.

In both genera each cell has 2 ovules. Schlechter described *Sericolea* as having 4 ovules in each cell but in the material I have seen, among which some of Schlechter's types, I always counted 2 ovules per cell only. In the *Elaeocarpaceae* furthermore only *Vallea* and some species of *Elaeocarpus* have 2 ovules per cell.

Vallea and *Aristotelia* have one descending and one ascending ovule. In this character they stand apart in the family, all other genera having only pendulous ovules.

Fruit

As regards the fruit, *Aristotelia* and *Sericolea* stand apart in the family being the only genera with berries, all others having either dehiscent capsules or drupes.

Seeds

The seeds provide good diagnostic characters to distinguish between the two genera. In *Aristotelia* the seeds are semiglobose to ellipsoid, flattened on the side where they are pressed against each other. The testa consists of an outer fleshy tunic and an inner bony layer which forms a thick-walled cavity at the chalazal end. The embryo which is embedded in endosperm, is straight. In *Sericolea* the seeds are falcate or even corniculate if only one seed develops. The outer fleshy tunic is in general much thinner than in *Aristotelia*, the inner bony layer is strongly thickened at the chalazal end but does not show a cavity. The embryo, following the shape of the seed, is curved.

In the structure of the seed *Sericolea* is unique among *Elaeocarpaceae*. *Aristotelia* resembles *Vallea* and *Tricuspidaria* in this respect although these have arillate seeds whereas only in *Aristotelia chilensis* (Mol.) Stuntz (= *A. macqui* L'Hér.) a strophiole is present, in literature often referred to as an aril. On the strength of this seed structure Miers (1869) proposed to unite the latter three genera in a subtribe *Tricuspidarieae*. But there is little reason to suppose a close relationship of *Tricuspidaria* with the two other genera, as will be shown later.

The characters just discussed are summarized in the table on page 178. For comparison the two closest allies, *Aceratium* and *Vallea*, are also included.

From this table it can be seen that *Aristotelia* occupies an intermediate position between *Vallea* and *Sericolea*. It agrees with the former in type of nervation, indumentum, aestivation of corolla, dehiscence of anthers, insertion of ovules, and seed morphology; with the latter in phyllotaxy, disk, absence of aril, arrangement of stamens, and fruit. I cannot yet

	Vallea	Aristotelia	Sericolea	Aceratium
Phyllotaxy	alternate	opposite (subopposite or in whorls of 3)	opposite (subopposite or in whorls of 3)	opposite (subopposite)
Leaves	long-petioled; ovate, rounded to subcordate at base, entire, subtriplinerved at the base, lateral nerves spaced, looped and joined; herbaceous	long- rarely short-petioled; ovate to lanceolate, rounded or subcordate at base, serrate or dentate, subtriplinerved at the base, lateral nerves spaced, looped and joined; herbaceous, rarely coriaceous	sessile or short-petioled; lanceolate with a driptip, rarely ovate and blunt; rounded at base, dentate, densely penninerved; coriaceous or pergamentaceous	long- or short-petioled; mostly broad ovate or lanceolate, rounded sometimes cordate at base, dentate, nerves as in *Aristotelia* but in one Australian species as in *Sericolea*; herbaceous or pergamentaceous
Indumentum	pubescent to tomentose, at least on the venation on the undersurface of the leaves	pubescent, especially on the undersurface of the leaves	sericeous, at least on the young parts and undersurface of the leaves, often with a silvery or golden shine	densely hairy, mostly hispidulous, tomentose, sericeous, or hirsute, rusty or reddish
Stipules	when present large, reniform	when present minute, early caducous	when present small, caducous	when present small, caducous
Inflorescences	axillary or terminal, 1-flowered or in few-flowered cymes	axillary, 1-flowered or in few-flowered cymes or racemes, 1 sp. with compound panicles	axillary, 1-flowered or in few-flowered cymes, racemes or thyrses	axillary, rarely terminal, few-flowered subumbellate racemes
Sepals	glabrous inside	glabrous inside	generally puberulous inside, median ridge present, sometimes weak	generally puberulous inside, median ridge mostly well developed
Aestivation of corolla	cochleate	cochleate	induplicate-valvate	induplicate-valvate
Petals	membranous, obovate, cuneate, 3-lobed, glabrous	membranous (1 sp. ± fleshy), obovate to spatulate, entire to 3-lobed, glabrous	fleshy, broadly to narrowly obovate, cuneate, the apex rounded to truncate, entire or crenulate to 2-5-lobed, inside often hairy at the base	narrowly obovate rarely ovate, lobed to laciniate, densely hairy inside and at the margins by which the petals are coherent at the lower margins, carinate inside
Stamens	many, *c.* 40, inserted irregularly on disk	(4-)12-15, usually in episepalous groups of 3, inner stamens always present, outer sometimes reduced or absent, inserted on disk	(8-)12-15, usually in episepalous groups of 3, or 1 episepalous and 1 epipetalous stamen, all inserted inside disk	(10-)15(-20), ± in a single whorl sometimes indistinctly in episepalous groups of 3, inserted partly on, partly inside disk
Filaments	curved inward, tapering towards the anther	as *Vallea*	filiform, straight or ± flexuose	long, filiform, usually strongly sigmoid or coiled, in some spp. tapering as in *Vallea*
Anthers	linear, ± cordate at the base, opening by 2 lateral, subapical pores	lanceolate, cordate at the base, opening by 2 lateral, subapical slits	ellipsoid to linear sometimes emarginate, opening by a transverse apical slit	narrowly oblong to linear, hispidulous at the apex, opening by a transverse apical slit

	Vallea	**Aristotelia**	**Sericolea**	**Aceratium**
Disk	flat, not lobed, glabrous	with weak or well developed episepalous lobes, glabrous (except in 1 sp.)	with well developed episepalous lobes, glabrous	high, indistinctly grooved, hairy (except in some species)
Style	cleft	cleft apically or undivided	short subulate blunt, undivided	long-subulate, undivided
Ovary	3-5-celled, glabrous	(2-)3-4(-5)-celled, glabrous (except 1 sp.)	2(-3)-celled, glabrous	2-5-celled, hairy, except in some species
Ovules	2(-3) per cell, anatropous, 1 ascending, 1 descending	2 per cell, anatropous, 1 ascending, 1 descending	2 per cell, anatropous, pendulous	6-14 per cell, anatropous pendulous
Fruit	capsule, globose, ± angular, c. 1 cm long, warty, with ± fleshy pericarp and subligneous endocarp, dehiscing apically	berry, soft fleshy, globose, 5-10 mm long	berry, soft to hard fleshy, globose to ovoid, 3-7 mm long	drupe with fleshy fibrous mesocarp firmly attached to the woody endocarp, 1-6 cm long
Seed	ellipsoid, fleshy outer layer and bony inner one, depressed at the chalazal end, embryo straight	ellipsoid to globose-angular, fleshy outer and bony inner layer, the latter forming a cavity at the chalaza, embryo straight	seeds falcate to corniculate, thin fleshy outer and bony inner layer, the latter strongly thickened at the chalazal side, embryo curved	ellipsoid to ovoid with thin papyraceous tunics, embryo straight
Aril or strophiole	aril well developed	in 1 sp. a strophiole present	absent	absent

decide in this stage which genus comes closer to *Aristotelia*. The strongest arguments for close alliance between *Sericolea* and *Aristotelia* are the opposite leaves and the berry. The first argument is weakened, however, by its tendency to occur in various genera of the *Elaeocarpaceae*. A berry can be thought to be derived from a capsule as well as from a drupe. The strongest argument in favour of a close relationship between *Vallea* and *Aristotelia* is the insertion of the ovules one of which being descending, the other ascending, a feature that is truly unique for the family.

So the agreement between *Aristotelia* and *Sericolea* could perhaps as well be explained as a convergent development; that between *Aristotelia* and *Vallea* is in my opinion of a more fundamental nature.

The opposite-leaved *Elaeocarpaceae* can be identified with the following key. (As said before, occasionally opposite leaves are also found in species of *Tricuspidaria**), *Sloanea*, and *Elaeocarpus*. *Tricuspidaria* can easily be recognized by its tubular, caducous calyx and capsular, angular, dehiscent fruit, *Sloanea* by its flat disk bearing numerous stamens with anthers dehiscing by lateral slits and by its capsular fruit, *Elaeocarpus* by its usually numerous, awned stamens, laciniate petals, and drupaceous fruit with pulpy mesocarp and rugulose or sulcate endocarp).

* See Sprague (Kew Bull. 1907, 10) for the use of *Tricuspidaria* R. & P. in preference to *Crinodendron* Mol.

KEY TO THE GENERA

1. Anthers dehiscing by 2 subapical lateral slits. Fruit a berry . . . . . **Aristotelia**
1. Anthers dehiscing by one apical transverse slit.
   2. Flowers large (more than 1 cm long), petals coherent at the margins. Fruit a drupe, over 1 cm long, with fibrous mesocarp firmly adhering to the woody endocarp . . . . . **Aceratium**
   2. Flowers small (less than 7 mm long), petals free. Fruit a berry, less than 7 mm long . . **Sericolea**

ARISTOTELIA

L'Héritier, Stirp. Nov. (1786) 31, t. 16.

Type species: *A. chilensis* (Mol.) Stuntz (= *A. macqui* L'Hér.).

Shrubs or small trees, branches terete, pubescent on the young parts. *Leaves* opposite or subopposite, rarely in whorls of three, on long (rarely short) petioles, ovate to lanceolate, serrate to dentate, subtriplinerved at the base, nerves spaced, looped and joined, and at acute angles to the midrib, pubescent beneath, especially on the venation. Stipules when present small, early caducous. *Flowers* axillary, solitary, or in few-flowered racemes or cymes, rarely in compound panicles, 4—5-merous, hermaphrodite, or plants dioecious. *Sepals* valvate, oblong to ovate, acute or obtuse, thin-fleshy, pubescent outside, glabrous inside. *Petals* slightly larger than sepals, cochleate in bud, obovate, entire, crenulate or deeply 3-lobed, membranous, glabrous on both sides; in the ♀ flowers of the dioecious species sometimes reduced to small scales. *Disk* protruded into a lobe opposite each sepal, moreover expanding as a ring between the insertion of the stamens and the base of the ovary. *Stamens* 4—15, usually in episepalous groups of three, the middle one of each group which is placed more centrally is always present, of the outer ones one or both may be absent; filaments curved inwards, pubescent, tapering distally; anthers lanceolate, cordate at the base, opening with two subapical lateral slits. *Ovary* glabrous except in *A. australasica* F. v. M., (2—)3—4(—5)-celled. Ovules 2 per cell, anatropous, one descending, the other ascending. *Fruit* a berry containing 1—6 seeds. Seeds ellipsoid to semiglobose, flattened where pressed against each other, outer integument fleshy, in *A. chilensis* developing a short curved strophiole, the inner integument bony, forming a depression at the chalazal end where the vascular strands enter the seed; endosperm present; embryo straight.

Distribution: Five species: *A. chilensis* (Mol.) Stuntz from Chile to Peru, *A. fruticosa* Hook. *f.* and *A. serrata* (Forst.) Oliv. both in New Zealand, *A. peduncularis* (Labill.) Hook. *f.* in Tasmania, and *A. australasica* F. v. M. in New South Wales.

Notes. The Chilean species is generally known as *A. macqui* (or misspelled "*maqui*") L'Hér. L'Héritier described it as the only species of his new genus *Aristotelia* in 1786. Molina described *Cornus chilensis* in his Saggio Chile as early as 1782; there is no reason to doubt that the same species was meant, the more so as no other species of the genus is known from S. America. The oldest epithet is therefore *chilensis;* the necessary combination in *Aristotelia* was made by Stuntz in 1914, but has apparently escaped the attention of many authors.

The two New Zealandic species, though widely different habitually, hybridize freely and differ from all others in being dioecious. They could perhaps be regarded as subspecies.

In another paper I have reduced both *Aristotelia megalosperma* F. v. M. and *A. triloculare* Bailey to *Aceratium megalospermum* (F. v. M.) v. Balgooy. *Aristotelia papuana* F. v. M.

is a nomen; there are strong indications that the author had in mind *Aristotelia gaultheria* which was reduced to *Sericolea gaultheria* by Schlechter.

SERICOLEA

Schlechter, Bot. Jahrb. 54 (1916) 95.

Lectotype species: Since no type species was designated by the author I have here chosen *S. micans* Schltr. as lectotype, this being one of the best described and most typical species.

Small strongly branched trees or shrubs, sometimes epiphytic. Branches terete or rarely angular. At least young parts covered by shining sericeous hairs. *Leaves* opposite or partly subopposite, rarely in whorls of three, shortly petioled to nearly sessile, ovate to lanceolate, long-acuminate, the apex either drawn out into a shorter or longer driptip, or obtuse, margin dentate, rarely entire, coriaceous, glabrous above, sericeous to lanate beneath, rarely only some sericeous hairs on the midrib. Small filiform caducous stipules sometimes present. *Inflorescence* axillary, usually a raceme, cyme, or thyrse with few decussate flowers, sometimes a few-flowered panicle, rarely flowers solitary. *Flowers* hermaphrodite, 4—5-merous. *Sepals* valvate, oblong-ovate, acuminate to obtuse, mostly coriaceous, sericeous to nearly glabrous outside, inside minutely puberulous and with a more or less distinct median longitudinal ridge. *Petals* induplicate-valvate in bud, at anthesis as long as or longer than the sepals, oblong-obovate, obovate, or obdeltoid to elliptic, truncate to rounded and crenulate to more or less lobed at the top, fleshy, rarely membranous, glabrous outside, inside often with a tuft of hairs at the base. *Disk* glabrous, with distinct episepalous lobes. *Stamens* in episepalous groups of three, the innermost central one of the three larger than the outer two; outer stamens often reduced in number, in some species one larger episepalous and a smaller, outer, epipetalous one; anthers linear to obovate, truncate, sometimes emarginate at apex, the two cells dehiscing by a transverse apical slit, glabrous or more often minutely puberulous. *Ovary* glabrous, generally 2-celled, rarely 3- or even 4-celled, 2 anatropous pendent ovules per cell. Style short, subulate, often slightly curved back at the very tip, glabrous. *Fruit* a globose to ovate or obovate berry, soft fleshy to nearly dry. Seeds 1—4, falcate or corniculate, with a thin fleshy outer integument and a bony inner one which is strongly thickened at its obtuse chalazal end. Embryo curved, embedded in endosperm.

Distribution: About 21 species have so far been described in *Sericolea*, all from New Guinea; they are in need of revision.

PLANT GEOGRAPHICAL REMARKS

The *Elaeocarpaceae* are a southern Hemisphere family best developed round the Pacific Basin. Van Steenis (1962) distinguishes four main types of transpacific distribution: northern temperate and subtropical, tropical, southern subtropical, and southern temperate. Three of these types are found in this family.

Tropical: *Sloanea*, represented in Australasia and America.

Southern subtropical: a group of three closely allied genera: *Tricuspidaria* (S. America), *Dubouzetia* (New Caledonia, New Guinea, Ceram), and *Peripentadenia*, described by L. S. Smith (1957) from Queensland.

Southern temperate: *Aristotelia* (S. America, New Zealand, Tasmania, New South Wales), linked to *Vallea* (Andean S. America from Patagonia to Venezuela) and the New Guinea *Sericolea*.

Such wide transpacific affinities are frequently composed of two or more genera of which one has not rarely a much wider distribution than the others. Sometimes one genus of such affinity is limited to the West Pacific, the other(s) to the Americas. The smaller area may also be that of an infrageneric taxon. A few examples may illustrate this.

Araucaria is represented in S. America, New Zealand, New Caledonia, Norfolk I., Australia, and New Guinea; the species of the latter island belong to section *Intermedia* (White, 1947).

Gevuina occurs in Chile and Argentina, Australia, and New Guinea, and has a close ally in *Kermadecia:* New Caledonia, New Hebrides, Fiji, and Samoa (Sleumer, 1955).

Nothofagus, the classical example of this distribution type, is represented by an endemic subsection *Bipartitae* in New Guinea and New Caledonia (van Steenis, 1953).

In all these cases it is clear that the related taxa have a common origin.

Sericolea has probably likewise originated from some common ancient subantarctic stock, though not necessarily from *Aristotelia.*

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