

## THE MALAYSIAN GENUS *RIGIOLEPIS* HOOKER F.

by

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(*Oegstgeest*).

The Ericaceous genus *Rigiolepis* was founded by Sir JOSEPH D. HOOKER (Ic. plant. third ser. II (1876), 54, pl. 1160) on a single species from Borneo, viz. *R. borneensis* HOOK.F. HOOKER was not quite sure about some of the characteristics, and failed to compare it with *Vaccinium* to which genus, indeed, several authors have reduced it.

In 1914 I have discussed the *Rigiolepis* question (in Ic. Bog. IV, 68) in the note under *Vaccinium uniflorum* J. J. S. and was inclined to believe that *Rigiolepis* should be maintained as a distinct genus, although my material was not sufficient to solve the question definitely. Since I have studied many other species of this affinity and I do not hesitate to accept the genus.

H. N. RIDLEY (in Kew Bull. 1922, 106) maintains the genus also but was evidently not fully convinced of the correctness, for he says: „Several botanists have reduced the genus to *Vaccinium* but in its epiphytic habit, extra-axillary racemes, and very small flowers it is so different from typical species of *Vaccinium* that I should be unwilling to include it in that genus; if referred to *Vaccinium*, however, it and the following new species should be placed in a distinct subgenus.” This argumentation I cannot participate for the characteristics summed up would not separate *Rigiolepis* from *Vaccinium*. The epiphytic habit is a very common phenomenon in *Vaccinium*. Extra-axillary racemes, so far I know the species, do not occur in *Rigiolepis* (slightly supra-axillary in *R. Endertii*) nor in *Vaccinium* but the inflorescences are produced in the leaf-axils or in the axils of fallen leaves in both genera, and smallness of the flowers can be left out of consideration as they differ, also in *Vaccinium*, considerably in size.

RIDLEY l. c. emphatically excluded *Vaccinium acuminatissimum* MIQ. from *Rigiolepis*, for he says: „By some curious error MERRILL has reduced *Rigiolepis borneensis* to *Vaccinium acuminatissimum* MIQ., with

which it has nothing in common" \*). I do not understand what should be the criterium; in my opinion both species are most closely related.

H. F. COPELAND l. c. remarks, although he has apparently not seen material, that it is possible that *Rigirolepis* should be maintained as a genus „but at least neither the genus nor the species is far removed from others.”

In my opinion *Rigirolepis* is sufficiently characterized by the stamens and the ovary. The stamens have in general the shape of those of *Vaccinium*; the filament is linear and often pubescent, the anther is dorsifix, produced in two moderate tubes and provided on the back with two spurs. They differ in the tubes tapering towards the apex, somewhat in the way of *Dimorphanthera*, and open by a long, longitudinal, cleftlike, introrse pore. The ovary is 10-celled, with the septa similar, complete and thin. The leaves are usually long acuminate and distinctly 3—7-plinerved but sometimes the basal nerves are rather inconspicuous so that the leaves are rather penninerved. The racemous inflorescences, as pointed out above, are produced in the leaf-axils or in the axils of fallen leaves, few- or many-flowered, rarely reduced to a single flower, solitary or fascicled, usually more or less puberulous. The bracts, bracteoles and sepals are sometimes strongly nerved. The flowers are small or very small.

There is another small group of species that perhaps best would be referable here, viz. some species of *Agapetes*. *Agapetes* as generally interpreted is a heterogenous genus. I agree with COPELAND that the nearest allies of *Agapetes setigera* D. DON may constitute a tenable genus. The others, principally Malayan, *A. Griffithii* CLARKE, *A. perakensis* RIDL., *A. micrantha* RIDL., *A. Wrayi* RIDL., *A. pubescens* RIDL. and perhaps others, so far I know, differ in the corolla, quite different stamens and the 10-celled ovary. The only species I know, is the one of which I described a monstrous form with separate petals under the name of *Vaccinium dialypetalum* (in Ic. Bog. IV (1912), 99, t. CCCXXXI). Normal specimens of what I believe to be the same species were collected in Sumatra, a.o. on Kerintji-Peak. In *V. dialypetalum* the anthers are laterally cohering, which character it has in common with the true *Agapetes*-species. I do not know if it holds good also for the normal flower. The species from Kerintji-Peak was enumerated by RIDLEY in his Kerintji-list (in Journ. Fed. Mal. St. Mus. VIII (1917), 56) under the name of *A. Griffithii* CLARKE, but in 1932 in a

\*) See H. F. COPELAND in Phil. Journ. Sc. XLVII (1931), 104.

letter Mr. RIDLEY kindly informed me that the Kerintji plant is *A. pubescens* RIDL. I suppose that the Javanese species also belongs here. Although the plants in question have much in common with *Rigiolepis*, I do not merge them in that genus because my knowledge of them is insufficient.

### **Rigiolepis** HOOK.F.

HOOK.F. Ic. Plant. 3rd ser. II (1876), 54, t. 1160; DRUDE in ENGL. u. PR. Nat. Pfl.fam. IV, 1 (1897), 49; J. J. S. in Ic. Bog. IV (1914), 68; in KDS. et VAL. Bijdr. 13 Booms. Java (1914), 145; RIDL. in Kew Bull. 1922, 106; H. F. COP. in Phil. Journ. Sc. XLVII (1932), 103.

Calyx 5-partitus, laciniis persistentibus. Corolla urceolata, 5-loba, lobis in praeformatione imbricatis. Stamina 10, inclusa, aequalia, circa discum inserta, filamentis corollae basi leviter adnatis, plerumque undatis pilosisque, antheris liberis, dorsifixis, in tubulos 2 mediocres vel satis longos apicem versus attenuatos poro conspicuo longitudinali rimi-formi introrso hiantes productis, dorso bicalcaratis. Ovarium inferum, cum pedicello articulatum, 10-loculare, septis aequalibus, tenuissimis, completis; stylus columnaris, stigmatibus parvo truncato. Baccæ calyce discoque coronata, 10-locularis. Semina in loculis 1—3, satis conspicua.

Fructices plerumque epiphytici, saepe pubescentes. Folia alterna, breviter petiolata, integerrima, supra basin utrinque glandula marginali instructa, saepissime distincte raro indistincte 3—7-plinervia. Inflorescentiae axillares vel in axillis foliorum delapsiorum, raro paululum supra-axillares, racemosae, pauci-multiflorae, raro floribus ad unum reductis, solitariae vel fasciculatae, plerumque secundae, foliis multo breviores, saepe puberulae. Flores parvi vel parvuli, saepe puberuli et minute muriculati, pedicellati, pedicello bracteolato.

The genus as here interpreted is confined to Java, Sumatra and Borneo; the majority of species originate from the latter island.

The following species should be reckoned to it. I am acquainted with more species but the material at hand is not good enough to describe them. On the other hand some of the species enumerated below may prove, when good materials are available, identical with others.

*Rigiolepis borneensis* HOOK.F. Ic. pl. XII (1876), 54, t. 1160; COPEL. in Phil. Journ. Sc. XLVII (1932), 103; RIDL. in Kew Bull. 1922, 106. — *Vaccinium borneense* W. W. SM. in Notes Bot. Gard. Edinb. VIII (1915), 329. — *V. acuminatissimum* MERR. (non Miqu.) in Journ. Str. Br. R. As. Soc. Spec. numb. (1921), 465.

Frutex ramulis plus minusve dense hirtopuberulis, inferne squamis triangulo-subulatis interdum leviter foliaceis rigidis pungentibus dorso valde prominenter nervosis puberulis c. 0.2—1 cm longis inspersis. Folia alterna, breviter petiolata, elliptica ad lanceolata vel plus minusve ovata, acuminata vel longe acuminata, acutiuscula vel obtusa, basi acuta vel interdum obtusa, integerrima, margine recurva, glandula marginali impressa utrinque supra basin, adulta nervis supra subtusque praesertim versus basin puberulis exceptis glabra, interdum subglabrescentia, 5-plinervia, nervis valde adscendentibus, longissimis fere usque apicem productis, exterioribus interdum inconspicuis, supra in canaliculis tenuiter prominentibus subtus valde prominentibus, curvatis, intra marginem anastomosantibus, venis transversis curvatis connexis, reticulo venarum sicco utrinque prominente, supra inter nervos et interdum etiam inter venas valde convexa, coriacea, nitida, c. 7.5—15 cm longa, 1.75—5.5 cm lata; petiolus puberulus, c. 0.3—0.5 cm longus. Inflorescentiae axillares, solitariae, breves, satis multi- vel satis pauciflorae, sessiles, 1—2.2 cm longae, squamis densis imbricantibus subulatis vel triangulo-subulatis rigidis pungentibus puberulis ad basin, rachide villosulo-pubescente. Bracteeae patentae, ovatae, acutae vel acuminatae, valde concavae, dorso valde prominenter nervosae, puberulae, longius ciliatae, c. 0.25—0.275 cm longae. Flores parvi, breviter pedicellati, pedicello tereti, puberulo, cum ovario articulato, 0.23—0.26 cm longo, bracteolis 2 oppositis incurvis ovato-lanceolatis acuminatis acutis concavis puberulis ciliatis nervis 3—5 validis dorso prominentibus rigidis c. 0.17—0.2 cm longis supra vel infra medium. Calyx 5-partitus, laciniis adpressis, ovato-triangulis vel oblongo-ovato-triangulis, acutis, dorso puberulis, ciliatis, dorso valde prominenter 3-nerviis, inter nervos semipellucidis, c. 0.175 cm longis, 0.075—0.1 cm latis. Corolla subovoideo- vel subovali-urceolata, basi apiceque valde contracta, 5-angulato-lobata, apice 5-lobata, puberula, c. 0.225—0.26 cm longa, 0.2—0.225 cm diam., lobis recurvis, triangulis, convexis, dorso puberulis, c. 0.04 cm longis. Stamina 10, 0.16—0.2 cm longa; filamentum lineare, papillosum, 0.07 cm longum; anthera dorsifixae, oblongo-ovato-triangula, apicem versus angustata, basi obtusissima retusa, circiter usque ad medium in tubulis 2 leviter incurvulis contiguis erectis apicem versus attenuatis obtusis poro introrso longissimo sublineari hiantibus fissa, tubulis exceptis minute echinulata, 0.075 cm longa, calcaribus 2 conspicuis erecto-patentibus incurvulis subulatis minute echinulatis c. 0.04 cm longis dorso ad basin tubulorum. Ovarium semiglobosum, patenter pubescens, c. 0.075 cm altum, 0.125 cm diam.; stylus teres, versus apicem vix incrassatus, truncatus, glaber, c. 0.2 cm longus. Discus

annulari-discoformis, margine minute lobulatus, puberulus, 0.06 cm diam. Fructus brevissime pedicellatus, laciniis calycis triangulis 0.3—0.325 cm longis discoque excavato coronatus, globosus, pubescens, maceratus c. 0.45 cm diam., 10-ocularis, septis omnibus tenuibus. Semina 1—2 in loculis, compressa, oblonga, plus minusve triangula, interdum falcata, reticulata, c. 0.16—0.17 cm longa.

Borneo: Sarawak (Native collector nrs. 1160!, 1748!, 1956!). Mt. Poi. (J. and M. S. CLEMENS n. 21962!, 8 October 1929). Mt. Matang, 700 m. (J. and M. S. CLEMENS n. 20992!, October 1929). Matang Road (Native collector DABONG nrs. 729!, 1503!). Kuching. (G. D. HAVILAND and C. HOSE n. 1020!, 27 August 1894). Wester Afdeeling. (JAHERI!, without locality and number). Boekit Singkadjang. (J. E. TEYSMANN n. 8149!). Landak Ngabang. (J. E. TEYSMANN nrs. 11514!, 11555!). Between Soengai and Goenoeng Kenepai. (H. HALLIER nrs. 1488!, 1937!, 1893—'94). Goenoeng Kelam. (H. HALLIER n. 2339!, 1893—'94). Mandor, 50 m. (E. POLAK n. 219!, 11 December 1930).

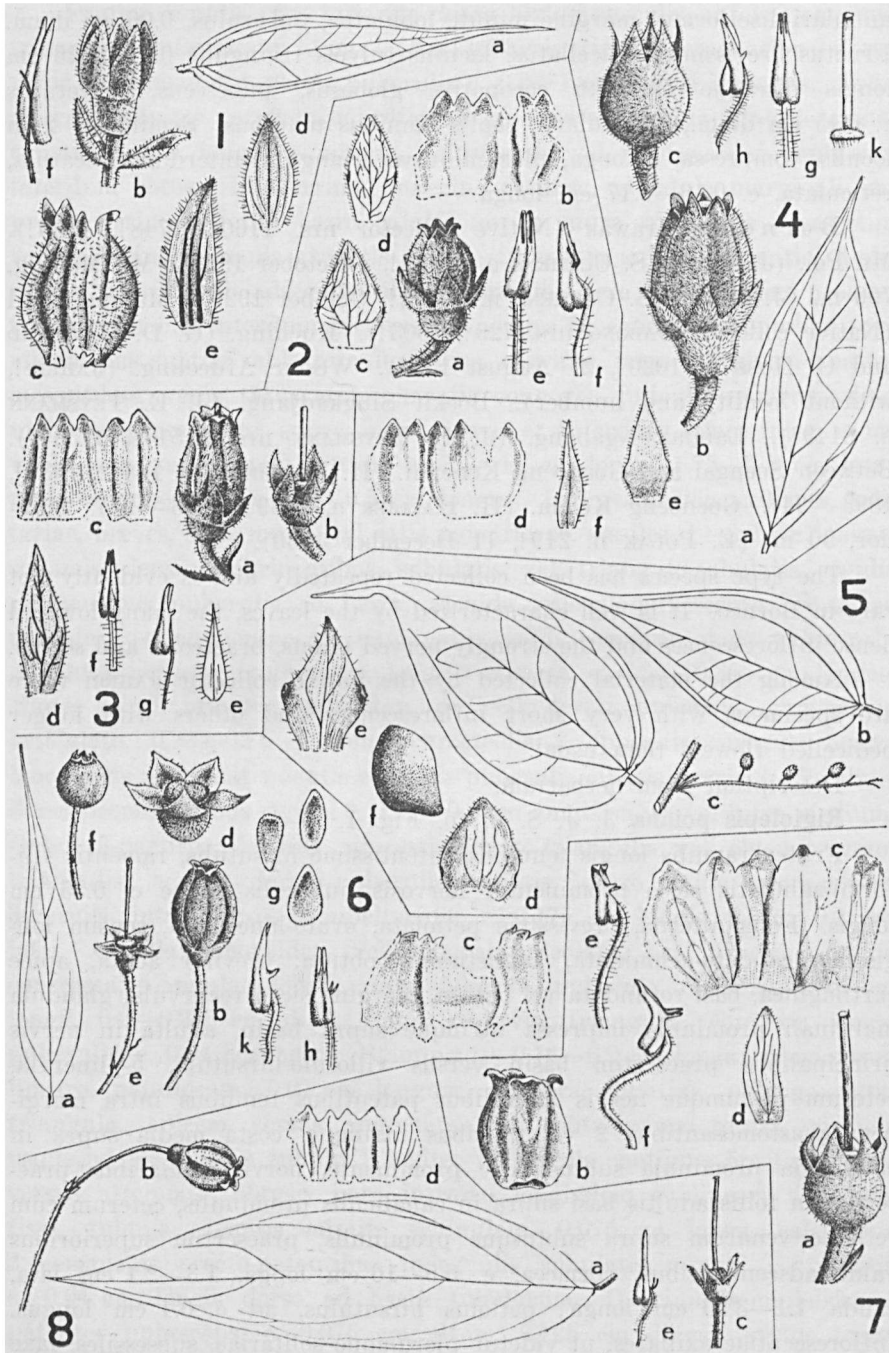
The type species has been collected repeatedly and is evidently not rare in Borneo. It is well characterized by the leaves, the manyflowered dense inflorescences and the strongly nerved bracts, bracteoles and sepals.

Among the material collected by the native collector JAHERI there are specimens with very short inflorescences and others with longer pedicelled flowers than usual.

Description from herbarium.

*Rigiolepis poiana* J. J. S. n. sp. Fig. 1, a—f.

Frutex ramulis longis tenuibus patentissime hirsutulis, ramentis filiformi-subulatis sicco prominenter nervosis puberulis usque c. 0.55 cm longis. Folia alterna, brevissime petiolata, ovato-lanceolata, sensim longissime caudato-acuminata, angustissime obtusa, breviter acuta, apice cartilaginea, basi rotundata vel obtusa, margine sicco recurvula, glandula marginali prominula impressa utrinque supra basin, adulta in nervis principalibus praesertim basin versus villosulo-hirsutula, 5-plinervia, ceterum plerumque nervis lateralibus patentibus tenuibus intra marginem anastomosantibus 2 vel pluribus utrinque, costa media supra in canalicula prominula subtus bene prominente, nervis basilaribus praesertim in foliis adultis basi supra in canaliculis prominulis, ceterum cum reticulo venarum supra subtusque prominulis, praesertim superioribus valde adscendentibus, coriacea, c. 5.5—10 cm longa, 1.3—2.1 cm lata, cauda 1.1—3.25 cm longa; petiolus hirsutulus, ad c. 0.4 cm longus. Inflorescentiae axillares, ut videtur plerumque solitariae, sessiles, laxae c. 15-florae, nonnullis squamis subulatis hirsutulis ad basin, rachide



patentissime hirsutula, 4.25—6 cm longa. Bracteae ovatae, saltem inferiores acuminatae, concavae, hirsutulae, dorso prominenter nervosae. Flores pedicellati, pedicello crassiusculo, tereti, patentissime pubescente nonnullisque pilis clavatis ad apicem insperso, 0.25 cm longo, bracteolis 2 oppositis patentibus ovato-oblongis apiculatis concavis utrinque hirtello-puberulis in margine nonnullis pilis clavatis inspersis 3-nerviis firmis fere 0.3 cm longis 0.1 cm latis in medio pedicelli. Calyx 5-partitus, adpressus, laciniis oblongo-ovatis, apicem versus angustatis, acutiusculis vel obtusiusculis, utrinque pubescentibus, ciliatis, nonnullis pilis brevioribus clavatis in margine inspersis, 0.3 cm longis, 0.12 cm latis. Corolla urceolata, 5-angulato-lobata, basi fauceque contracta, apice 5-loba, intus extusque dense hirtello-puberula, extus nonnullis pilis clavatis inspersa, macerata 0.45 cm longa, lobis triangulo-ovatis. Stamina 10, 0.275 cm longa; filamentum lineare, papillosum; anthera supra basin dorsifixata, parte inferiore oblonga basi obtusissima lobulata echinulata, thecis antice sulco separatis sulco laterali instructis, in tubulos 2 erectos contiguos rectos apicem versus attenuatos producta, calcaribus 2 conspicuis filiformi-subulatis 0.05 cm longis ad basin tubulorum, tota 0.225 cm longa, tubulis c. 0.125 cm longis. Ovarium cum pedicello articulatum, bene semiglobosum, dense patentissime hirtello-pubesceus, c. 0.1 cm altum, cum calyce fere 0.4 cm longum; stylus sepala superans, teres, glaber, 0.3 cm longus. Discus pulvinatus, hirtellus.

B o r n e o: Sarawak, Mt. Poi, 1700 m. (F. W. FOXWORTHY n. 395! (type), 3 June 1908). Same locality, 1300—1500 m. (J. and M. S. CLEMENS nrs. 6779!, 20006!, 20019!, 20043!, 22589!, September 1829).

#### Explanation of the plate.

Fig. 1. *Rigiolepis poiana* J. J. S. a. Folium. b. Flos absque corolla. c. Corolla. d. Bractea. e. Bracteola. f. Stamen. — Fig. 2. *Rigiolepis lanceolata* (Bl.) J. J. S. f. *sumatrana*. a. Flos. b. Corolla explanata. c, d. Bracteae. e, f. Stamina. — Fig. 3. *Rigiolepis lanceolata* (Bl.) J. J. S. f. *marapiensis*. a. Flos. b. Calyx et pistillum. c. Corolla explanata. d. Bractea. e. Bracteola. f, g. Stamina. — Fig. 4. *Rigiolepis lanceolata* (Bl.) J. J. S. f. *elliptica*. a. Folium. b. Flos. c. Fructus. d. Corolla explanata. e. Bractea. f. Bracteola. g, h. Stamina. k. Pistillum. — Fig. 5. *Rigiolepis Korthalsii* J. J. S. a, b. Folia. c. Racemus fructifer. d, e. Bracteae. f. Semen. — Fig. 6. *Rigiolepis salicifolia* J. J. S. a. Folium. b. Flos. c. Corolla explanata. d. Calyx cum ovario. e. Flos absque corolla. f. Fructus. g. Semina. h, k. Stamina. — Fig. 7. *Rigiolepis Endertii* J. J. S. a. Pistillum. b. Corolla. c. Idem, explanata. d. Bractea. e. Stamen minus. f. Stamen majus. — Fig. 8. *Rigiolepis filiformis* J. J. S. a. Folium. b. Flos. c. Flos absque corolla. d. Corolla explanata. e. Stamen.

I think that the collections cited above belong together, though good flowering material is lacking; only on the type there is a flower which, however, had already been examined by Dr. MERRILL. The type differs from the specimens collected by Mr. and Mrs. CLEMENS in the larger leaves and longer and laxer inflorescences, just as if this specimen was collected on a more shady spot.

The species differs from *R. borneensis* HOOK.F. in the much smaller, differently shaped leaves, the very hairy inflorescences and flowers, larger flowers.

Description from herbarium.

***Rigiolepis lancifolia*** RIDL. in Kew Bull. 1922, 107.

Borneo: Sarawak, near Quop. (G. D. HAVILAND n. 619). Mount Start, 540 m. (G. D. HAVILAND n. 1462).

***Rigiolepis Lobbii*** RIDL. in Kew Bull. 1922, 107.

Borneo: Sarawak, 900 m. (TH. LOBB).

***Rigiolepis uniflora*** J. J. S. nov. comb. — *Vaccinium uniflorum* J. J. S. in Ic. Bog. IV (1910), 67, t. CCCXX.

Borneo: Wester-Afdeeling, Amai Ambit. (H. HALLIER n. 3296!, (type), 1893—'94).

This species without doubt belongs to *Rigiolepis*.

RIDLEY compares his *Vaccinium monanthum* with *R. uniflora* J. J. S. It is quite possible that that species belongs also in *Rigiolepis*, but as I have no certainty I do not remove it from *Vaccinium*.

***Rigiolepis lanceolata*** J. J. S. nov. comb. — *Gaylussacia lanceolata* BL. Bijdr. (1826), 861; DUN. in DC. Prodr. VII, 2 (1840), 557; MIQ. Fl. Ind. Bat. II (1858), 1063. — *Vaccinium lanceolatum* J. J. S. in Ic. Bog. IV (1910), 68; in K. et V. Bijdr. 13 Booms. Java in Meded. Dep. Landb. No. 18 (1914), 144; Kds. Exkursionsfl. III (1912), 12. — *V. acuminatissimum* MIQ. Ann. Mus. Bot. Lugd. Bat. I (1863), 36. — *Agapetes lanceolata* NIED. in ENGL. Bot. Jahrb. XI (1890), 201. — *A. acuminatissima* NIED. l. c.

Java: Western part, Goenoeng Salak. (C. L. BLUME n. 2045!; S. H. KOORDERS n. 24469 $\beta$ !, 22 September 1896).

This species is well distinguished from *R. borneensis* especially by the marginal glands projecting in the way of small auricles, the longer and laxer inflorescences and the bracts, bracteoles and sepals not being prominently veined.

It appears to be confined to West-Java but in Sumatra several forms occur which are described below.

KOORDERS l. c. overlooked the fact that I adopted the name *Vaccinium*



*lanceolatum* for the species in Ic. Bog. IV, 68 and I did the same in Bijdr. 13 Booms. Java, 144.

f. *sumatrana*. — *Vaccinium acuminatissimum* MIQ. f.  $\beta$  *sumatrana* MIQ. Ann. Mus. Bot. Lugd. Bat. I (1863), 36. Fig. 2, a—f.

Frutex epiphyticus, ramulis tenuiusculis, superne flexuosis, teretibus, initio puberulis. Folia alterna, breviter petiolata, oblonga ad lanceolata, sensim longe acuminata, anguste obtusa, basi obtusa, sicco margine recurva, glandula marginali prominente excavata utrinque ad basin, adulta supra basi leviter puberula excepta glabra nitidaque, subtus puberula opaca, 7-plinervia, secundum nervos canaliculata, nervis adscendentibus, longissimis fere usque ad apicem productis, subtus prominentibus, ceterum nonnullis nervis parvis utrinque, reticulo venarum supra vix prominulo subtus obsolete, rigida, c. 4.6—9.6 cm longa, 1.8—2.9 cm lata; petiolus semiteres, puberulus, 0.15—0.35 cm longus. Inflorescentiae axillares, solitariae, subsessiles, laxae satis multiflorae, racemosae, secundae, 3.25—4.5 cm longae, nonnullis squamis subulatis puberulis ad basin, rachide dense puberula. Bracteae patentis, incurvae, concavae, ellipticae ad rhombeae, acutae vel obtusae, medio vel infra medium latissimae, ibi utrinque glandula marginali sessili donatae, puberulae, ciliolatae, c. 0.4 cm longae, 0.2—0.25 cm latae. Flores c. 15, parvi, breviter pedicellati, pedicello curvulo, tereti, puberulo, pilis crassioribus muriceiformibus insperso, cum ovario articulato, 0.2 cm longo, bracteolis 2 lineari-lanceolatis puberulis ciliolatis in margine nonnullis muricibus inspersis 0.14 cm longis ad basin. Calyx 5-partitus, laciniis patentibus, ovato-triangularibus, leviter acuminatis, acutis, dorso puberulis, 0.18—0.2 cm longis, 0.125—0.14 cm latis. Corolla ample urceolata, canaliculis 5 longitudinalibus valde angulato-quinquelobata, apice contracto 5-lobulata, extus praesertim in angulis puberula, intus glabra, fere 0.3 cm longa, 0.275 cm, limbo 0.175 m diam., secta et explanata 0.325 cm longa, 0.475 cm lata, lobis recurvis, convexis, triangularibus, obtusis, c. 0.05 cm longis, 0.06—0.07 cm latis. Stamina 10, 0.25 cm longa; filamentum leviter sigmoideum, lineare, sparse longiuscule pilosum; anthera dorsifixae, verticalis, oblonga, apicem versus angustata, subrecta, basi obtusissima 4-lobulata, circiter usque medium in tubulos 2 erectos contiguos rectos apicem versus leviter attenuatos obtusos poro introrso longo lineari hiantes fissa, thecis antice sulco separatis sulco laterali instructis, tubulis exceptis minute echinulata, calcaribus 2 supra basin angulato-incurvis ceterum rectis erectis parallelis lineari-subulatis obtusis medium tubulorum attingentibus vel paululum superantibus dorso ad basin tubulorum, 0.125 cm longa. Ovarium semiglobosum, dense puberulum, 0.1 cm altum, fere 0.2 cm diam.; stylus teres, truncatus,

basi attenuatus, glaber, 0.3 cm longus. Discus annulari-crateriformis, extus 10-lobulatus, c. 0.1 cm diam.

Sumatra: West coast, Goenoeng Tandike and Singgalang. (P. W. KORTHALS!). Padang, Ajer Mantjoer, 360 m. (O. BECCARI n. 516!, August 1878). Bengkoeloe, Soeban Ajam. (Expedition E. JACOBSON, AJOEB n. 353!, 12 July 1916; „epiphytical, flowers white”).

Differing from the type in the smaller leaves with more sunk nerves, commonly shorter inflorescences, somewhat larger flowers.

Description from herbarium.

f. *marapiensis*. Fig. 3, a—g.

Frutex, ramulis elongatis, dense pubescentibus. Folia alterna, breviter petiolata, lanceolata, sensim longissime acuminata, apice obtusa vel obtusiuscula, basi breviter in petiolum contracta, in utraque parte canaliculae longitudinalis convexa, interdum etiam secundum nervos basilares superiores leviter canaliculata, margine sicco recurva, glandula marginali prominente excavata utrinque ad basin, novella utrinque puberula, supra glabrescentia, 5-plinervia, nervis intra marginem anastomosantibus, pare secundo longe adscendente, costa media subtus prominente, reticulo venarum supra plerumque distincte prominente subtus obsoleto, tenuiter coriacea, rigida, c. 4.25—8.5 cm longa, 1.1—2 cm lata; petiolus a dorso compressus, transverse rugulosus, puberulus, 0.25—0.3 cm longus. Inflorescentiae axillares, solitariae vel interdum fasciculatae, subsessiles, racemosae, laxae multiflorae, secundae, c. 4—6 cm longae, squamis subulatis puberulis ad c. 0.45 cm longis ad basin, rachide dense puberula. Bracteae patentes, incurvae, valde concavae, lanceolatae, versus apicem angustatae, obtusiusculae, ciliolatae, c. 0.4 cm longae, bene 0.1 cm latae. Flores parvi, breviter pedicellati, pedicello curvulo, tereti, puberulo, c. 0.075 cm longo, bracteolis 2 ovato-lanceolatis longe angustatis puberulis ciliatis 1-nerviis c. 0.18—0.2 cm longis, 0.04 cm latis ad basin. Calyx 5-partitus, c. 0.25 cm diam., laciniis corollae adpressis, ovato-triangularibus, acuminatis, acutis, dorso sparse puberulis, ciliolatis, 0.125 cm longis, 0.08—0.1 cm latis. Corolla ovoideo-urceolata, canaliculis 5 longitudinalibus valde angulato-quinquelobata, apice 5-lobulata, puberula, macerata secta et explanata 0.35—0.36 cm longa, 0.45 cm lata, lobis recurvis convexis triangularibus obtusis 0.05—0.06 cm longis, 0.06—fere 0.1 cm latis. Stamina 10, 0.175—0.2 cm longa; filamentum leviter sigmoideum, lineare, sparse longe pilosum; anthera dorsifixae, verticalis, recta, oblonga, apicem versus sensim angustata, basi obtusissima 4-lobulata, usque ad vel paululum ultra medium in tubulos 2 contiguos apicem versus attenuatos poro parvo introrso longitudinali hiantes fissa, thecis antice sulco separatis,

tubulis exceptis minute echinulata, calcaribus 2 brevibus divergentibus anguste triangulis obtusis supra basin tubulorum, fere 0.1 cm longa. Ovarium semiglobosum, dense puberulum, cum pedicello articulatum, 0.05 cm altum, 0.13 cm diam.; stylus teres, glaber. Discus pulvinatus, medio excavatus, margine lobulatus, puberulus? Fructus subglobosus, puberulus, maceratus 0.36 cm diam.

**S u m a t r a:** West coast, Goenoeng Marapi, 1100 m, on a tree in forest. (H. A. B. BÜNNEMELJER n. 4868!, 23 September 1918). Same locality, 1200 m, border of forest. (H. A. B. BÜNNEMELJER n. 5010 (type!), 30 September 1918; „flowers white’’).

Differing from the type in the small, more leathery leaves with especially the midrib sunk.

Description from herbarium.

f. *elliptica*. Fig. 4, a—k.

Frutex, ramulis saepe plus minusve flexuosis, teretibus, verrucosis, novellis puberulis, glabrescentibus. Folia alterna, brevissime petiolata, oblique elliptica, satis abrupte anguste acutiuscule acuminata, basi angustata obtusa vel obtusiuscula, margine leviter recurvula, glandula marginali sessili lobuliformi obtusa utrinque ad basin, supra subtusque praesertim in nervis minute puberula, glabrescentia, 5—7-plinervia, nervis basalibus adscendentibus intra marginem anastomosantibus tenuibus supra in canaliculis prominentibus subtus prominentibus superioribus fere usque ad apicem productis, ceterum nonnullis nervis lateralibus parvis plerumque supra in canaliculis prominulis utrinque, reticulo venarum satis distincto utrinque vix prominulo, sicco coriacea, sordide fusca, utrinque nitidula, c. 7—13 cm longa, 2.5—4.7 cm lata; petiolus brevissimus, hirtellus, plus minusve glabrescens, rugulosus, 0.2—0.3 cm longus. Inflorescentiae axillares, solitariae vel geminatae, brevissime pedunculatae, plus minusve secundae, laxae pluriflorae, c. 3 cm longae, squamis subulatis puberulis ad basin, rachide tenui, dense fuscescente puberula. Bractee patentissimae, incurvae, concavae, subovatae vel subrhombeae, subulato-acuminatae, interdum utrinque glandula marginali instructae, dorso puberulae, ciliolatae et nonnullis muricibus minutis in margine inspersae, c. 0.375 cm longae, bene 0.15 cm latae. Flores breviter pedicellati, cum ovario 0.48 cm longae, pedicello cum ovario articulato, tereti, puberulo, c. 0.2 cm longo, bracteolis 2 angustis lineari-subulatis apice incurvis concavis puberulis ciliolatis et in margine minute muriculatis c. 0.225 cm longis, 0.05 cm latis ad basin. Calyx patens, 5-partitus, 0.325 cm diam., laciniis triangulis, acuminato-angustatis, acutis vel obtusiusculis, dorso patentissime hirtellis, ciliatis et nonnullis muricibus

parvis in margine, 0.175—fere 0.2 cm longis, 0.08—0.14 cm latis. Corolla ovoideo-urceolata, sulcis 5 longitudinalibus sectione transversa 5-lobata, apice contracto 5-lobulata, basi contracta, patentissime puberula, macerata et subcompressa 0.375 cm longa, 0.275 cm diam., secta et explanata 0.375 cm longa, bene 0.6 cm lata, lobis triangulis, acutis vel acutiuseculis convexis, 0.075 cm longis, 0.075—0.1 cm latis. Stamina 10, e. 0.25 cm longa; filamentum lineare, leviter sigmoideum, omnino patentissime longiuscule pilosum, 0.15 cm longum; anthera dorsifixata, ambitu oblongo-triangula, basi obtusissima quadrilobulata, in tubulos 2 erectos contiguos thecis longiores apicem versus attenuatos apice antice viso anguste obtusos a latere viso acutos poro elongato introrso hiantes producta, inter thecas et tubulos plerumque leviter constricta, thecis antice sulco separatis sulco laterali instructis, calcaribus 2 brevibus reversis incurvulis obtusis dorso ad basin tubulorum, tubulis exceptis minute echinulata, 0.125—0.14 cm longa. Ovarium semiglobulosum, dense hirtellum et pilis paulo crassioribus inspersum, 0.1 cm altum, fere 0.2 cm diam.; stylus teres, truncatus, glaber, fere 0.3 cm longus. Discus disciformis, vix lobulatus, vertice truncatus, breviter erecto-hirtellus, e. 0.1 cm diam. Fructus calyce erecto discoque coronatus, globosus, dense hirtellus, 0.4 cm diam., 10-loculare, septis tenuibus. Semina e. 11, oblonga, recta, 0.22—0.25 cm longa.

Simaloer: (ACHMAD n. 529 (type!), 8 July 1918; nom. ind. „lingkih<sub>2</sub> datan”).

Mentawai Islands: Sipora, environs of Sioban, epiphytcal in forest. (BOER n. 538!, 29 October 1924; „flowers white”).

This appears to be defined to the islands on the west coast of Sumatra. The leaves are distinctly elliptic.

Description from herbarium.

**Rigiolepis Korthalsii** J. J. S. n. sp. — *Vaccinium acuminatissimum* MIQ. f. *borneensis* MIQ. Ann. Mus. Bot. Lugd. Bat. I (1863—'64), 36. Fig. 5, a—f.

Frutex, ramulis teretibus, pubescentibus, lenticellis verruciformibus. Folia alterna, breviter petiolata, ovata vel lato-ovata ad lanceolato-ovata, longissime caudato-acuminata, acuta vel anguste obtusa, basi rotundata, integerrima, margine sicco recurva, glandula marginali impressa utrinque supra basin, supra glabra basi in costa media tantum pubescentia, subtus sparse punctata initio strigillosa et in costa parce patenter puberula, margine parce ciliata, 7—9-plinervia, nervis basilaribus curvatis intra marginem anastomosantibus supra in sulcis prominulis subtus bene prominentibus superioribus longe adscendentibus, reticulato-venosa, venis

utrinque prominulis, inter nervos bullata, coriacea, 4—11 cm longa, 1.7—4.2—6 cm lata; petiolus pubescens, 0.1—0.5 cm longus. Inflorescentiae (in fructu) axillares, solitariae, racemosae, brevissime pedunculatae, laxae vel sublaxe pluri- ad satis multiflorae, 0.8—6 cm longae, pluribus squamis triangulis ad elongato-subulatis puberulis usque 0.7 cm longis ad basin, rachide pubescente. Bractae subpersistentes, ovatae ad rhombeae, obtusae vel acutae, saepe supra basin vel medio utrinque glandula marginali crassiuscula impressa instructae, parcius pubescentes et ciliatae, 0.23—0.3 cm longae, 0.15—0.24 m latae. Baccae sepals incurvis discoque coronatae, subgloboae, parcae puberulae, 0.55 cm diam., 10-loculares, pariete carnosio, septis membranaceis, oculis 1—2-spermis; pedicellus puberulus, 0.3—0.65 cm longus, bracteolis 2 persistentibus, ovato-lanceolatis suboppositis vel remotis donatus. Semina compressa, elliptica, basi acuta, lateribus convexa, 0.225—0.25 cm longa.

**Borneo:** Wester-Afdeeling, summit of the Sakoembang (Sekoembang). (P. W. KORTHALS, type!)

This is neither a form of *Vaccinium acuminatissimum* MIQ. nor *R. borneensis* HOOK.F. but a distinct species well characterized by the shape of the leaves. BLUME named it *Munnickia lanceolata* BL. var. *latifolia* BL. in the Leiden Herbarium.

Description from herbarium.

**Rigirolepis macrophylla** J. J. S. n. sp.

Frutex validus, ramulis brevissime tomentello-puberulis. Folia alterna, magna, breviter petiolata, oblongo-ovata, longe acuminata, apice anguste obtusa, basi rotundata, margine sicco recurva, glandula marginali impressa utrinque prope basin, adulta magnam partem glabra, utrinque in nervis praesertim ad basin puberula, 5—7-plinervia, ceterum penninervia, nervis lateralibus in toto 7—8 utrinque, in costam valde decurvis, valde adscendentibus bene curvatis intra marginem anastomosantibus supra in canaliculis prominentibus subtus valde prominentibus, reticulato-venosa, venis supra in canaliculis inconspicuis leviter prominulis subtus tenuiter prominulis, coriacea, supra nitida, subtus plerumque opaca, 20—30 cm longa, 6.75—9 cm lata; petiolus subsemiteres, puberulus, 0.4—0.8 cm longus. Inflorescentiae (in fructu) axillares, fasciculatae, brevissime pedunculatae, satis multi-(c. 15-)florae, rachide sicco angulata, brunneo-puberula, 3.2—3.6 cm longae. Bractae ovatae, incurvae, concavae ad cucullato-concavae. Baccae erecto-patentes, sepals incurvis coronatae, puberulae, pedicello puberulo, 0.45—0.5 cm longo.

**Central Borneo:** Boekit Batoc Lesoeng. (Exp. A. W. NIEUWENHUIS 1898—'99, AMDJAH n. 480; type!)

Although this is only in fruit I have described it as it is very characteristic in its large foliage.

A plant collected by HALLIER (n. 1281) at Soengai Semitau may belong here but the marginal glands are placed exactly at the base of the blade and somewhat prominent.

Description from herbarium.

*Rigiolepis sulcata* J. J. S. nov. comb. — *Vaccinium sulcatum* RIDL. in Kew Bull. 1922, 107.

Borneo: Sarawak. (O. BECCARI n. 3780). Niah. (G. D. HAVILAND and C. HOSE n. 3466). Near Kuching. (G. D. HAVILAND n. 1625).

*Rigiolepis bigibba* J. J. S. comb. nov. — *Vaccinium bigibbum* J. J. S. in Bull. Jard. Bot. Buit. 3e sér. I (1918), 408, t. 55.

Borneo: Wester-Afdeeling, Landak, Poelau Pandjang. (J. E. TEYSMANN n. 7966!). Kapoeas. (J. E. TEYSMANN n. 7970!). Without locality and number. (JAHERI; type!). Soengai Semitau. (H. HALLIER n. 1281b!, 1893—'94). Soengai Bloe-oe. (Exp. A. W. NIEUWENHUIS 1896—'97, JAHERI n. 425!). ?Soengai Broenai. (Exp. A. W. NIEUWENHUIS 1896—'97, JAHERI n. 714!).

The marginal glands are in this species somewhat prominent but not so distinctly as in *R. lanceolata*.

It seems that the flower described and figured in Ic. Bog. l. c. was somewhat disturbed. In other flowers I found the anther tubes tapering and the spurs well developed and subulate.

*Rigiolepis Moultonii* J. J. S. nov. comb. — *Vaccinium Moultonii* MERR. in Journ. Mal. Br. R. As. Soc. LXXXVII (1923), 22.

Borneo: Sarawak, Upper Baram, Gunong Tembao (Temalok?), 1200 m. (J. C. MOULTON n. 6676 (type), 5 November 1920; colour of flowers Saccardo n. 26). Gat, Upper Rejang river. (J. and M. S. CLEMENS n. 21697!, 24 October 1929).

Very near *R. bigibba* J. J. S.

*Rigiolepis salicifolia* J. J. S. n. sp. Fig. 6, a—k.

Frutex epiphyticus, laxe ramosus, ramulis elongatis, tenuibus, saepe quaquaverse flexuosis, dense puberulis, indumento diu persistente, laxe foliatis. Folia alterna, brevissime petiolata, ovato-lanceolata ad anguste ovato-lanceolata, latiora sensim longe angusteque acuminata, angustiora sensim longissime angustato-acuminata, anguste obtusa vel acuta, basi foliorum latiorum obtusa foliorum angustiorum breviter cuneata sub-acuta, utrinque supra basin glandula marginali sessili instructa, adulta supra ad basin et in costa media leviter puberula glabrescentia, subtus nonnullis muricibus minutis adpressis inspersa, ut videtur glabrescentia,

5-plinervia, superne utrinque nervis lateralibus majoribus 2—3 instructa, nervis basilaribus lateralibusque erecto-patentibus, praesertim pare nervorum tertio vel quarto longissime adscendentibus, nervis majoribus supra in canalicula prominentibus subtus prominentibus, reticulo venarum supra prominente subtus plerumque minus distincto, sicco rigide coriacea sed satis tenuia, supra subnitidula sordide cinerea vel fusciscenti-cinerea, subtus magis fusciscentia, 4.8—10—9.5 cm longa, 0.8—1.6—2.35 cm lata; petiolus subteres, puberulus, glabrescens, c. 0.15—0.3 cm longus. Inflorescentiae axillares vel in axillis squamarum in ramulorum parte inferiore, solitariae vel binae, foliis breviores, brevissime pedunculatae, pluri- vel satis multiflorae, squamulis e basi dilatata subulatis ad basin et in pedunculo, rachide filiformi, puberula, 2.3—4.8 cm (fructificatione) longa. Bractae parvae, patentes vel recurvae, incurvae, concavae, quadrangulae ad oblongae, conspicue acuminatae, ciliolatae et parvae minute muriculatae, c. 0.14 cm longae. Flores c. 7—15, parvi, pedicello satis longo, tenui, puberulo et muricibus minutis clavatis insperso, c. 0.56 cm longo, bracteolis 2 plerumque remotis parvis angustis concavis puberulis in parte inferiore vel raro versus medium. Calyx 5-partitus, 0.275 cm diam., laciniis laxe adpressis, late subovato-triangularibus, acutis vel leviter acuminatis, ciliolatis et minute muriculatis in margine, 0.075—0.08 cm longis, 0.1 cm latis. Corolla ovoideo-urceolata, longitudinaliter 5-plicato-lobata, apice bene contracto 5-lobata, paucissime muriculato-puberula, intus glabra, tenuis, macerata c. 0.4 cm longa, 0.3 cm diam. (compressa), secta et explanata c. 0.44 cm longa, 0.74 cm lata, lobis parvis, recurvis, convexis, triangularibus, obtusis, 0.04 cm longis, 0.05—0.075 cm latis. Stamina 10, inclusa, 0.3 cm longa; filamentum lineare, versus basin paululum dilatatum, undato-sigmoideum, patentissime pilosum, 0.15 cm longum; anthera dorsifixata, introrsa, subrecta, ovalis, basi truncato-obtusa, minute echinulata, thecis antice sulco separatis sulco laterali instructis, in tubulos 2 conspicuos erectos rectos contiguos apicem versus angustatos anguste obtusos poro elongato introrso hiantes producta, calcaribus 2 conspicuis dorso ad basin tubulorum reversis falcato-adscendentibus vix divergentibus subulatis obtusiusculis minutissime echinulatis fere 0.05 cm longis, c. 0.2 cm longa, tubulis dimidium totius longitudinis paululum superantibus. Ovarium cum pedicello articulatum, turbinatum, puberulum muriculatumque, 0.07 cm altum, 0.125 cm diam.; stylus teres, glaber, 0.3 cm longus. Discus pulvinatus, radiato-10-lobulatus, pubescens, bene 0.1 cm diam. Fructus calyce discoque coronatus, globosus, praesertim basi puberulus muriculatusque, 0.45 cm diam., 10-ocularis, c. 25-spermus, septis omnibus tenuibus, pedicello c. 0.9 cm

longo. Semina 2—3 in loculis, oblonga ad triangula, 0.24—0.275 cm longa.

Central East Borneo: West Koetai, Kemoel, 1800 m, epiphytical in primeval forest. (F. H. ENDERT n. 4100!, 13 October 1925; „epiphytical, calyx green, corolla dirty dark red”). Summit of the Kemoel, 1800 m, mountain-ridge, primeval forest, humus. (F. H. ENDERT n. 3988!, 13 October 1925; „fruit first yellow, afterwards orange-red”). Kong Kemoel, 1800 m, on tree in primeval forest. (F. H. ENDERT n. 4425 (type!), 20 October 1925; „shrub, flowers first yellow, afterwards red, fruit yellow”).

In the shape of the flowers resembling in many respects *R. filiformis* J. J. S. but differing in the narrow leaves with partly long ascending basal nerves, larger, shorter pedicelled flowers with relatively shorter anther-tubes.

Description from herbarium.

*Rigiolepis leptantha* J. J. S. nov. comb. — *Vaccinium leptanthum* Miq. Ann. Mus. Bot. Lugd. Bat. I (1863—'64), 37; J. J. S. in K. et V. Bijdr. Booms. Java, XIII (1914), 146, in Meded. Dep. Landb. No. 18. — *V. acuminatissimum* Miq. f. *leptantha* VUYCK ex BOERL. Handl. II (1891), 263. — *Agapetes leptantha* NIED. in ENGL. Bot. Jahrb. XI (1890), 201.

Sumatra. (P. W. KORTHALS n. 468b!, n. 1251!). Karangnata. (H. O. FORBES n. 3129!, 1880).

Lingga Archipelago: Poelau Semarang, 10 m. (H. A. B. BÜNNEMEIJER n. 7517!, 17 August 1919).

Java: Goenoeng Papandajan. (P. W. KORTHALS!).

This species is well characterized by the abruptly acuminate, triplinerved leaves with the basal nerves very thin, rather obscure and long ascending, and the veins obsolete. The basal portion of the anthers is in comparison with the tubes very short.

f. *elliptica*.

Folia elliptica, longe satis abrupte obtuse acuminata, basi acuta vel late acuta, glandula marginali impressa utrinque paulo supra basin, 5-plinervia, nervis basilaribus supra tenuiter prominulis subtus vix conspicuis, costa media supra in canalicula prominula subtus leviter prominente, novella ut videtur utrinque minutissime puberula, plus minusve glabrescentia, subtus leviter punctata, sicco supra nitidissima, sordide grisea vel griseo-fusca, subtus opaca sordide fusca, 4.5—7.5 cm longa, 1.6—2.6 cm lata; petiolus semiteres, costa media in facie superiore pedicelli decurrente, tomentellus, 0.3—0.5 cm longus. Inflorescentiae (in fructu) axillares, solitariae, breves, minute puberulae.



Borneo: Sarawak, Kinabalu, Bidi cave. (J. and M. S. CLEMENS n. 20689!, 19 October 1929). Wester-Afdeeling, Goenoeng Semedoem. (H. HALLIER n. 711!, 1893—'94).

This differs from the type in the broader, less abruptly acuminate leaves.

HALLIER noted on the label: „Blätter erst durch's Trocknen lackiert“).

HAVILAND and HOSE n. 984 looks very much the same like *R. leptantha*; it may be a variety or a closely allied species.

*Rigiolepis Endertii* J. J. S. n. sp. Fig. 7, a—f.

Frutex, ramulis tenuiter puberulis. Folia alterna, breviter petiolata, ovato-lanceolata, longissime acuminata, anguste obtusa vel saepe acuta, basi rotundata et breviter vel distinctius cuneato-angustata, integerrima, margine sicco recurvula, glandula marginali impressa utrinque supra basin, adulta supra glabrata vel basi in nervis leviter puberula, subtus magis puberula et muricibus minimis adpressis inspersa, 5—7-plinervia, ceterum nervis lateralibus 3—4 utrinque, nervis lateralibus tenuibus patentibus longe adscendentibus intra marginem anastomosantibus utrinque prominentibus sed nervis supra saepe in canaliculis sitis, reticulo venarum supra subtusque plus minusve prominulo, coriacea, supra nitida, subtus nitidula, c. 8.5—16 cm longa, 2—3.9 cm lata; petiolus supra costa a costa media decurrente instructus, transverse rugulosus, tenuiter puberulus, 0.3—0.5 cm longus. Inflorescentiae axillares vel potius paulo supra-axillares, solitariae vel fasciculatae, laxe racemosae, fere sessiles, pluri-multiflorae, nonnullis squamis subulatis puberulis ad basin, pedunculo abbreviato, nonnullis squamis breviter ovatis concavis puberulis in bracteas vergentibus donato, rachide tenui, sicco angulata, puberula, c. 2.4—4.7 cm longa. Bracteae patentissimae, oblongae, acutae vel apiculatae, concavae, ciliolatae, c. 0.24—0.27 cm longae, 0.08 ad fere 0.1 cm latae. Flores c. 10—18, parvi, pedicellati, pedicello cum ovario articulato, brevi, crassiusculo, puberulo, c. 0.15—0.4 cm (sub fructu) longo, bracteolis 2 subadpressis lanceolato-triangularibus ad subulatis acutis puberulis 0.08—0.1 cm longis donato. Calyx 5-partitus, corollae adpressus, bene 0.1 cm altus, 0.23 cm diam., laciniis triangularibus, acutis, parvis muriculatis, ciliolatis, fere 0.1 cm longis, c. 0.1 cm latis. Corolla subgloboso-urceolata, plieis 5 longitudinalibus 5-angulato-lobata, apice constricta, 5-lobata, extus parvis minute muriculata, intus glabra, macerata c. 0.4 cm longa, 0.3 cm diam., secta et explanata 0.4 cm longa, 0.74 cm lata, lobis brevibus, recurvis, convexis, e basi lata contractis, obtusis, c. 0.06 cm longis, 0.1—0.14 cm latis. Stamina 10, 0.3 cm longa; filamentum valde undato-

sigmoideum, lineare, densius satis grosse patentissime pubescens, 0.2 cm longum; anthera dorsifixa, tota oblonga, absque tubulis subquadrata, basi truncato-obtusissima 2—subquadrilobulata, in tubulos 2 incurvos cum parte inferiore angulum obtusum vel fere rectum facientes rectos contiguos apicem versus attenuatos obtusos poro longitudinali introrso hiantes parte inferiore subaequilongis producta, thecis antice sulco separatis sulco laterali instructis, calcaribus 2 reversis parallelis rectis linearibus obtusis 0.03 cm longis ad basin tubulorum, tubulis exceptis minute echinulata, tota 0.14 cm longa. Ovarium semiglobosum, minute muriculatum, 0.1 cm altum, 0.2 cm diam., 10-loculare, septis omnibus tenuibus; stylus teres, glaber, apice truncatus, 0.35 cm longus. Discus pulvinatus cum excavatione, margine inconspicue 10-lobulatus, glaber, 0.14 cm diam.

Central East Borneo: Koetai, Kemoel, 1500 m, on a narrow rocky mountain-ridge. (F. H. ENDERT n. 3883 (type!), 12 October 1925; „shrub, 4 m high, fruit yellow to orange”). Same locality, 1800 m, on a tree in primeval forest. (F. H. ENDERT n. 4479!, 22 October 1925; „shrub, fruit-galls”).

This has in common with *R. filiformis* J. J. S. (ENDERT n. 4041) the nearly penninerved leaves but is readily distinguished by the stronger nerved, more shining leaves, the much stouter inflorescences, larger, shorter pedicelled flowers, relatively shorter anther tubes and straight spurs.

There are two kinds of anthers on the material. Those described above are probably the normal ones. The others are smaller, measuring only 0.2—0.25 cm, the anther 0.07—0.075 cm. The filaments are shorter and much less bent; the tubes and the spurs of the anther are also shorter, the tips of the former recurved. Both forms may occur in the same flower.

N. 4479 bears only fruit-galls but belongs, I think, to the same species.

Description from herbarium.

*Rigiolepis caudatifolia* J. J. S. nov. comb. — *Vaccinium flagellatifolium* MERR. in herb. — *V. caudatifolium* MERR. in Journ. Str. Br. R. As. Soc. 76 (1917), 103 (non HAYATA in Ic. Pl. Formosa, 3 (1913), 127, t. 22); H. COPEL in Phil. Journ. Sc. 42 (1930), 567.

Borneo: Sarawak, without definite locality. (Nat. coll. n. 1679, type!). Liu-Matu, Baram. (N. 2792 Bur. Sc., Nov. 1, 1914; J. C. MOULTON n. 43!, 2 Nov. 1914, in fruit).

*Rigiolepis filiformis* J. J. S. n. sp. Fig. 8, a—e.

Frutex epiphyticus, ramis elongatis, ramulis sicco angulatis, minute

puberulis. Folia alterna, brevissime petiolata, lanceolata, versus apicem angustata, longe acuminata, acuta vel anguste obtusiuscula, basi cuneata, integerrima, margine revoluta, basi utrinque glandula marginali sessili instructa, novella utrinque minutissime puberula, adulta glabrescentia, subquintuplinervia, nervis basilaribus infimis minutis, ceterum in utraque parte costae mediae sicco supra in canalicula prominentis subtus prominentis nervis lateralibus c. 6—4 patentibus ad erecto-patentibus adscendentibus intra marginem anastomosantibus satis irregularibus tenuibus cum reticulo venarum supra subtusque prominulis, coriacea, opaca, c. 9.5—15.5 cm longa, 2.5—4 cm lata; petiolus saepe valde curvatus, subsemiteres, supra versus apicem costa media convexo-prominente, transverse rugulosus, initio minutissime puberulus, c. 0.2—0.4 cm longus. Inflorescentiae axillares et etiam e nodis ramulorum defoliorum, solitariae ad fasciculatae, subsessiles vel breviter pedunculatae, laxae satis multiflorae, 3—5 cm longae, pedunculo usque ad c. 1 cm longo, nonnullis squamis subulatis puberulis donato, rachide filiformi, minute puberula. Bractae persistentes, patentissimae, subnaviculari-concavae, oblongae, obtusae, ciliolatae, 0.15 cm longae, infimae e basi lata subulato-vel triangulo-acuminatae. Flores ad c. 14, parvi, cum ovario c. 0.26 cm longi, manifeste pedicellati, pedicello filiformi, sparse brevissime puberulo, c. 0.6—0.8 cm longo, bracteolis 2 parvis oppositis vel remotis adpressis anguste triangulis acutis vel subulatis concavis ciliolatis paulum vel bene supra medium pedicelli sitis. Calyx 5-partitus, corollae adpressus, 0.15 cm diam., 0.06 cm altus, laciniis triangulis, acutis vel acutiuseulis, ciliolatis, 0.06—0.07 cm longis, 0.04—fere 0.05 cm latis. Corolla ovali-urceolata, fauce constricta, 5-loba, tubo sectione transversa plicato-quinquelobata, sparse brevissime puberula, 0.175 cm, limbo 0.15 cm diam., secta et explanata transverse oblongo-quadrangula, c. 0.26 cm longa, 0.45 cm lata, lobis recurvis, convexis, triangulis, obtusis, 0.05 cm longis, 0.075 cm latis. Stamina 10, c. 0.225 cm longa; filamentum undatum, lineare, ima basi excepta pilosum, 0.12—0.125 cm longum; anthera in fere  $\frac{1}{3}$  supra basin totius longitudinis dorsifixae, subovalis, thecis antice sulco separatis sulco laterali instructis, basi subaequaliter 4-lobulata, echinulata, in tubulos 2 elongatos erectos contiguos rectos lineares obtusos poro introrso longissimo hiantes producta, calcaribus 2 brevibus adscendentibus subulatis obtusis dorso ad basin tubulorum, tota 0.15 cm longa, tubulis 0.1 cm longis, calcaribus fere 0.025 cm longis. Ovarium cum pedicello articulatum, bene subsemiglobosum, 0.04 cm altum, 0.07 cm diam.; stylus tenuis, teres, glaber, stigmatate truncato, 0.18 cm longus. Discus satus alte pulvinatus, sulcis 10 longitudinalibus 10-costato-lobulatus,

vertice satis profunde excavatus et parce pilosus, 0.06 cm diam.

Central East Borneo: West Koetai, Bolset, 400 m, epiphytical in primeval forest along riverbank. (F. H. ENDERT n. 4041 (type!), 5 September 1925; „hanging downward, 4 m long, flowers light yellow, anthers brown”).

This species resembles *R. leptantha* J. J. S. but the leaves are larger, more gradually acuminate, penninerved with the basal nerves not conspicuous and the larger sidenerves more prominent, not shining, and the inflorescences still thinner. From *R. salicifolia* J. J. S. it differs in the larger, almost penninerved leaves.

Description from herbarium and flowers preserved in spirit.