

***ECTOPOPTERYS*, A NEW GENUS OF MALPIGHIACEAE
FROM COLOMBIA AND PERU**

William R. Anderson
University of Michigan

In the course of a study of the tropical rain forest in the valley of the Río Anorí in northern Colombia, Dr. Djaja D. Soejarto has found a fascinating plant that is not assignable to any described genus of Malpighiaceae. Search of major herbaria has turned up two additional collections from Peru. This plant is described here as a new genus and species, and its possible affinities are discussed.

***Ectopopterys soejartoi* W. R. Anderson, gen. et sp. nov.**

Figurae 1 et 2.

Liana lignosa, usque 25 m scandens, ramis sericeis mox glabrat. Folia decussata; lamina foliorum majorum 7–12 cm longa, 3.0–5.3 cm lata, elliptica, basi cuneata, margine plana vel paulo revoluta, apice acuminata vel cuspidata, primum sericea permox glabrata vel subtus sparsissime sericea, subtus plerumque serie aliquot (usque 10) glandularum parvarum prope marginem vel usque 5 mm infra marginem instructa, nervis lateralibus utrinque 5–7 et reticulo utrinque in sicco prominulis; petiolus 6–9 mm longus, sparsim sericeus vel glabratus, eglandulosus vel prope apicem 2 glandulis parvis instructus; stipulae 0.5–1.0 mm longae, triangulares, interpetiolares ramulo portatae, liberae vel connatae, demum deciduae. Inflorescentia sericea demum glabrescens, axillaris et terminalis, paniculata, ramulis ultimis 4–12-floris, floribus decussatis in pseudoracemo vel corymbo 6-floro vel umbella 4-flora, bracteis 2.0–2.5 mm longis, 0.6–1.2 mm latis, linguiformibus, patentibus vel $\pm$ revolutis, plerumque eglandulosus, persistentibus vel demum deciduis, pedunculo 4–8 mm longo, apice bibracteolato, in fructu incrassato, bracteolis bracteis similibus plerumque brevioribus. Pedicellus 8–12 mm longus, sericeus demum glabratus, in fructu incrassatus. Alabastrum sphaeroideum, petalo extimo exposito (i.e. sepalis non tecto) in alabastro accrescenti. Sepala 5, omnia eglandulosa, 3 mm longa lataque, rotundata, abaxialiter sparsim sericea praecipue in centro, margine ciliolata, adaxialiter glabra, imbricata, sub anthesi valde reflexa. Petala 5, lutea, glabra, 4 lateraliter patentia vel reflexa, limbo 8.0–9.5 mm longo latoque, circulari, margine eroso-dentato, 2 antero-lateralibus profunde concavis, 2 postero-lateralibus planis vel parum concavis, ungue 2.0–3.0 mm longo, apice non constricto; petalum posticum erectum vel limbo reflexo, limbo 8.0–9.0 mm longo, 7.0–8.5 mm lato, obovato, distaliter paulo trilobato, margine basi integro incrassatoque aliter eroso-dentato, corrugato, ungue 2.5–3.5 mm longo, apice valde constricto. Stamina 10, valde inaequalia sed omnia fertilia; filamenta glabra, basi 0.5–1.0 mm connata, recta distaliter parum reflexa, 5 sepalis opposita 1.5–2.0 mm longa, 5 petalis opposita 1.0–1.5 mm longa; antherae loculis apice basique fasciculis pilorum instructis, 5 sepalis oppositae introrsae, loculis 1.4–1.8 mm longis, connectivis pyriformibus glandulosus loculos 0.8–1.1 mm superantibus, 3 petalo postico et petalis antero-lateralibus oppositae introrsae, loculis 1.5–1.8 mm longis, connectivis globosis glandulosus loculos non superantibus, 2 petalis postero-lateralibus oppositae latrorsae, loculis 0.8 mm longis, connectivis exiguis non glandulosus, subnullis; pollen 33–42 μ m diametro, colporatum, colp. non omnibus parallelis, oribus non omnibus aequatoriis. Ovarium ex 3 carpellis uniovulatis connatis constans, 1 carpello antico,

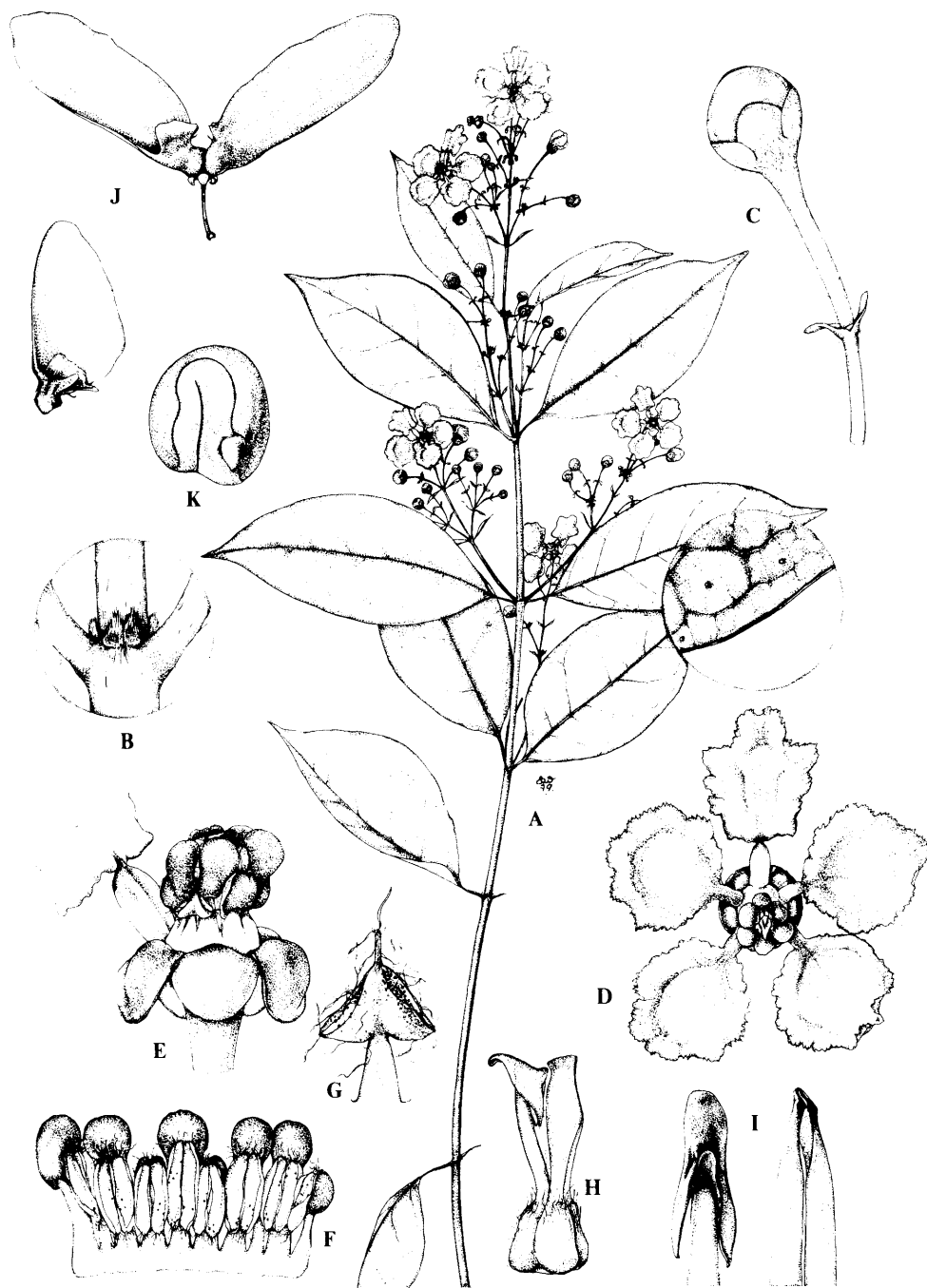


FIG. 1. *Ectopopterys soejartoi*, drawn from the type by Karin Douthit. A, flowering branch $\times 0.5$, the circle $\times 5$; B, stipules $\times 5$; C, flower bud $\times 2.5$; D, flower $\times 2$; E, androecium *in situ*, lateral petals removed, base of flag petal left for orientation, $\times 5$; F, androecium opened out, adaxial view, with stamen opposite flag petal at far right, the 2 reduced anthers hidden by larger neighbors, $\times 6$; G, reduced stamen opposite postero-lateral petal $\times 15$; H, gynoecium, side view, anterior style to left, $\times 7.5$; I, styles, adaxial views, anterior on left, posterior 2 on right, $\times 15$; J, samaras, the lower one with a third small wing, $\times 0.5$; K, embryo $\times 2.5$.

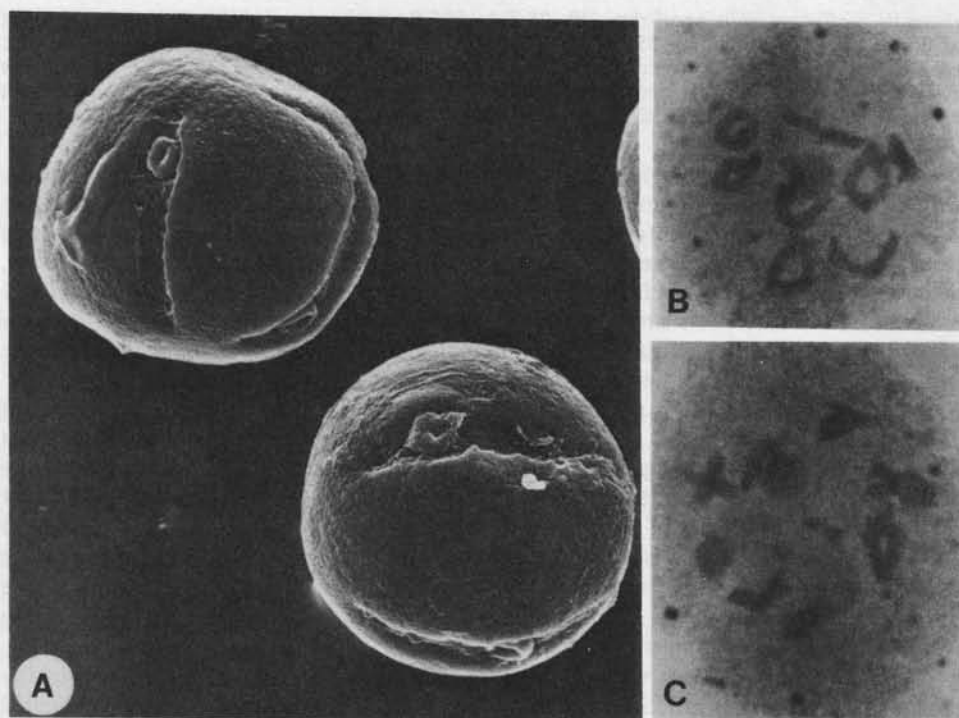


FIG. 2. *Ectopopterys soejartoi*. A, SEM of unacetolyzed pollen, *Soejarto 4488*, $\times 1285$; B and C, meiosis I in pollen mother cells, $n = 8$, *Soejarto 4416*, $\times 1500$.

2 posticis, ca. 1.3 mm altum, sericeum; styli 3, basi sericei distaliter glabri; stylus anticus ca. 2.9 mm longus, stigmathe interno, dorsaliter apice unco 0.8 mm longo et utrinque foliolis triangularibus pendentibus 0.9 mm longis instructus; 2 styli postici 2.5 mm longi, a lateribus complanati, apice truncati et connati vel cohaerentes, stigmatibus internis. Fructus ex 3 samaris (vel saepius abortu 2–1) in toro trigono portatis constans; samara matura glabrata vel sparsim sericea, 45–65 mm longa, pleurumque 2 alis valde inaequalibus instructa; ala principalis 36–55 mm longa, 17–25 mm lata, alam dorsalem in *Heteropteryge* simulans, i.e. ut videtur dorsalis, margine abaxiali (“inferiore”) incrassata et adaxiali tenui, $\pm$ falcata, re vero probabiliter lateralis, versus dorsum luxata; ala minor triangularis vel trapezoidea vel cristiformis, 3–14 mm alta (i.e. e nuce projecta), 9–18 mm lata, re vero probabiliter dorsalis sed versus laterem luxata; ala tertia raro evoluta, triangularis, usque 6 mm alta et 5 mm lata, in latere nucis ala principali remoto portata; nux 7–12 mm longa (e toro ad alam), apice 8–12 mm diametro, cylindrica vel truncato-turbinata, in sicco nervis longitudinalis prominentibus striata. Embryo sphaeroideus, cotyledonibus crassis, laevibus, replicatis, subaequalibus vel exteriore parum majore. Chromosomatum numerus (in typo numeratus): $n=8$.

Type. Anorí river bank, tropical rain forest, between Providencia and Alhibe, Antioquia, Colombia, elev. 400–800 m, 20–25 February 1976 flr/frt, *Djaja D. Soejarto et al. 4416* (holotype MICH, isotype HUA).

Paratypes. COLOMBIA. Antioquia, Municipio de Anorí, Corregimiento de Providencia, Valle del Río Anorí, elev. 400–900 m: Buenos Aires, advanced secondary forest, 20 Oct 1972 flr, *Soejarto 3399* (MICH); entre Dos Bocas y Anorí, advanced secondary forest, 12 Dec 1972 frt, *Soejarto 3617* (MICH, MO); Buenos Aires, forest above the road to Anorí, about 4 km from Providencia, 26 Apr–3 May 1973 flr/frt, *Soejarto et al. 4011* (COL, HUA); remnants of forest, Quebrada La Tirana, just

above its confluence with Anorí river, 20–25 Feb 1976 flr, *Soejarto et al.* 4488 (HUA, MICH); forest of Buenos Aires, trail side, 20–25 Feb 1976 flr, *Soejarto et al.* 4512 (HUA, MICH). PERU. Loreto: edge of forest, Yurimaguas, lower Río Huallaga, elev. 155–210 m, 22 Oct 1929 flr/frt, *L.I. Williams* 3872 (F); rainforest on lower north slopes of Cerros Campanquiz at Pongo de Manseriche, right bank of Río Marañón, elev. 300–550 m, 12–21 Oct 1962 flr, *Wurdack* 2356 (US).

This plant is notable for its eglandular, strongly reflexed sepals, its androecium with two anthers greatly reduced and the others bearing large glandular connectives, and its strongly heteromorphic styles, with the anterior stigmaphylloid and the posterior two truncate and coherent at the apex. The chromosome number ($n=8$) is also interesting, being new for the family. It is probably reduced from $n=10$, the common and apparently basic number for most samaroid genera for which counts have been made. Most peculiar of all is the samara, which superficially resembles that of *Heteropterys*. It usually bears two wings, one short, the other long and thickened on the abaxial edge as in *Heteropterys*. Rarely, a small third wing is present on the side of the nut. The form and disposition of these wings strongly suggest to me that the principal wing is actually one of the lateral wings that has become enlarged and shifted into a functionally dorsal position, while the other lateral wing has been suppressed. This interpretation is strengthened by the fact that in the very rare cases of development of a third wing, it develops on the side of the nut away from the large wing, not beside it. A third possibility is that the two wings usually developed represent two lateral wings unequally developed. The position of the third wing when it develops, and the absence of any sort of crest or midvein between the two usual wings, argue against this interpretation.

I really do not know where this plant's affinities lie. If my interpretation of the samara is correct, it is not close to *Heteropterys*. Even if I am wrong and the principal wing is truly dorsal, this species still does not belong in *Heteropterys*, since its sepals, anthers, and styles are quite unlike anything found in that genus. If the principal wing is actually lateral in origin, the obvious place to seek relatives is among the mascagnioid genera, such as *Mascagnia* and *Tetrapterys*. No species of either has an androecium or gynoecium like those of *Ectopopterys*, nor of course such a fruit. However, it is not very difficult to imagine a samara like that of *Mascagnia psilophylla* giving rise to that of *Ectopopterys*. A third possible relative is *Stigmaphyllon*. This suggestion is not based on the samara, because even if the principal wing is truly dorsal it is thickened on the wrong edge and bent the wrong way for *Stigmaphyllon*. The inflorescences of the two genera are also quite different, although it is possible that the dichasium of congested racemes found in *Stigmaphyllon* was ultimately derived from an ancestor with terminal panicles. However, the anterior style of *Ectopopterys* is identical to that of some species of *Stigmaphyllon*, and such a style is found in no other genus. The tufts of hairs on the anthers are also similar in species of both groups, and the strongly heteromorphic anthers with some of the connectives enlarged suggest a common ancestry, although the specific anthers reduced were ultimately different in the two lines. These characters suggest that generic relationships in the samara-bearing Malpighiaceae are more complex than the traditional "dorsal vs. lateral" taxonomy allows. In fact, too great reliance on characters of the fruit has probably obscured relationships in some cases, and in the future we must consider other aspects of the plants and be alert for parallel and, as in *Ectopopterys*, convergent origin of similar structures in lines that are not very closely related.

The disjunct distribution of this species is further support for the Nechí refuge, which is discussed in my paper on *Dicella* in Colombia (*Acta Amazônica* 5(3): 279–283. 1975). *Ectopopterys soejartoi* should eventually be found in Amazonian Colombia and westernmost Brazil.

The name *Ectopopterys* comes from the Greek words *ektopos* (displaced) and *pterys* (wing). It reflects my belief that the apparently dorsal wing of the samara is a displaced lateral wing. The epithet *soejartoi* honors Dr. Djaja D. Soejarto, collector of the

type. I am most grateful to Dr. Soejarto for returning to the type locality and collecting preserved buds, flowers, and fruits for me, which made the description and illustration much easier to prepare.

ACKNOWLEDGMENTS

Field work to collect material of *Ectopopterys soejartoi* in Antioquia was funded, in part, by a grant from the Colombian COLCIENCIAS No. Co. 002-1-14-74 to D. D. Soejarto.