

Adiantum mariposatum (Pteridaceae), a New Species from Ecuador

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ABSTRACT.—Approximately 40 species of *Adiantum* are represented in Ecuador. A new species is described here from Pastaza province, Ecuador. It has been confused with *A. anceps*, but differs in having only once-pinnate blades and pubescent rachises, segment stalks, and indusia.

KEY WORDS.—*Adiantum*, Ecuador, new species

The genus *Adiantum* comprises about 200 species distributed worldwide (Mickel and Smith, 2004) and is particularly abundant in the New World tropics. Several new *Adiantum* species have been described from South America (Zimmer, 2007; Prado, 2003; Prado and Smith, 2002; Prado, 2000) including one from Ecuador (Smith and Prado, 2004). In this paper yet another new species of *Adiantum*, from Pastaza Province, is described.

Adiantum mariposatum M. McCarthy & Hickey, *sp. nov.* TYPE.—ECUADOR. Pastaza, c. 5 km E of Mera, on road to Shell-Mera, 78°5'W 1°28'S, rocky escarpment, road bank and riverside vegetation, 1050 m, 30 July 1980, B. Øllgaard, S. Roth, & C. Sperling 35582 (holotype: AAU!; isotypes: GH!, UC). **Figs 1, 2.**

Folia pinnata, 16–23 cm longa, 6–12 cm lata; stipites atropurpurei usque ebenei, longitudinaliter 1/2–2/3 folia aequantes, glabri; rhachides atropurpureae usque ebeneae, supra hirsutae; pinnae 1–8, dimidiatae usque trapeziformes, 52–74 mm longae, 34–47 mm latae; petioluli brevi, 0.5–2 mm longi, hirsuti; indusia discreta, 0–5 per pinnam, ovata usque late ovata, hirsuta.

Plants terrestrial. *Rhizomes* short-creeping, 4–5 mm in diameter, densely scaly; *scales* triangular to narrowly triangular, lustrous, rigid, bullate, darkened centrally, castaneous along margins and apices, bases auriculate, margins with spreading to recurved teeth, apices attenuate. *Leaves* monomorphic, 16–32 × 6–12 cm; *stipes* 50–60% the length of the fronds, atropurpureous to ebeneous, mainly glabrous, with scattered scales near the base, shining to weakly glaucous; *stipe scales* narrowly triangular, stramineous proximally, castaneous distally, margins with spreading to recurved teeth; *blades* oblong to broadly obovate, pinnate (entire when young), glabrous, pinna bases overlapping the rachis; *rachises* atropurpureous to ebeneous, abaxially glabrous, adaxially with minute scattered hairs 0.1–0.2 mm long, hairs castaneous proximally, stramineous distally, extending onto segment stalks; *segments* dimidiate to trapeziform, papyraceous, not articulate, 50–75 × 34–47 mm, stalks 0.5–2.1 mm long, darkened color passing into segment bases,

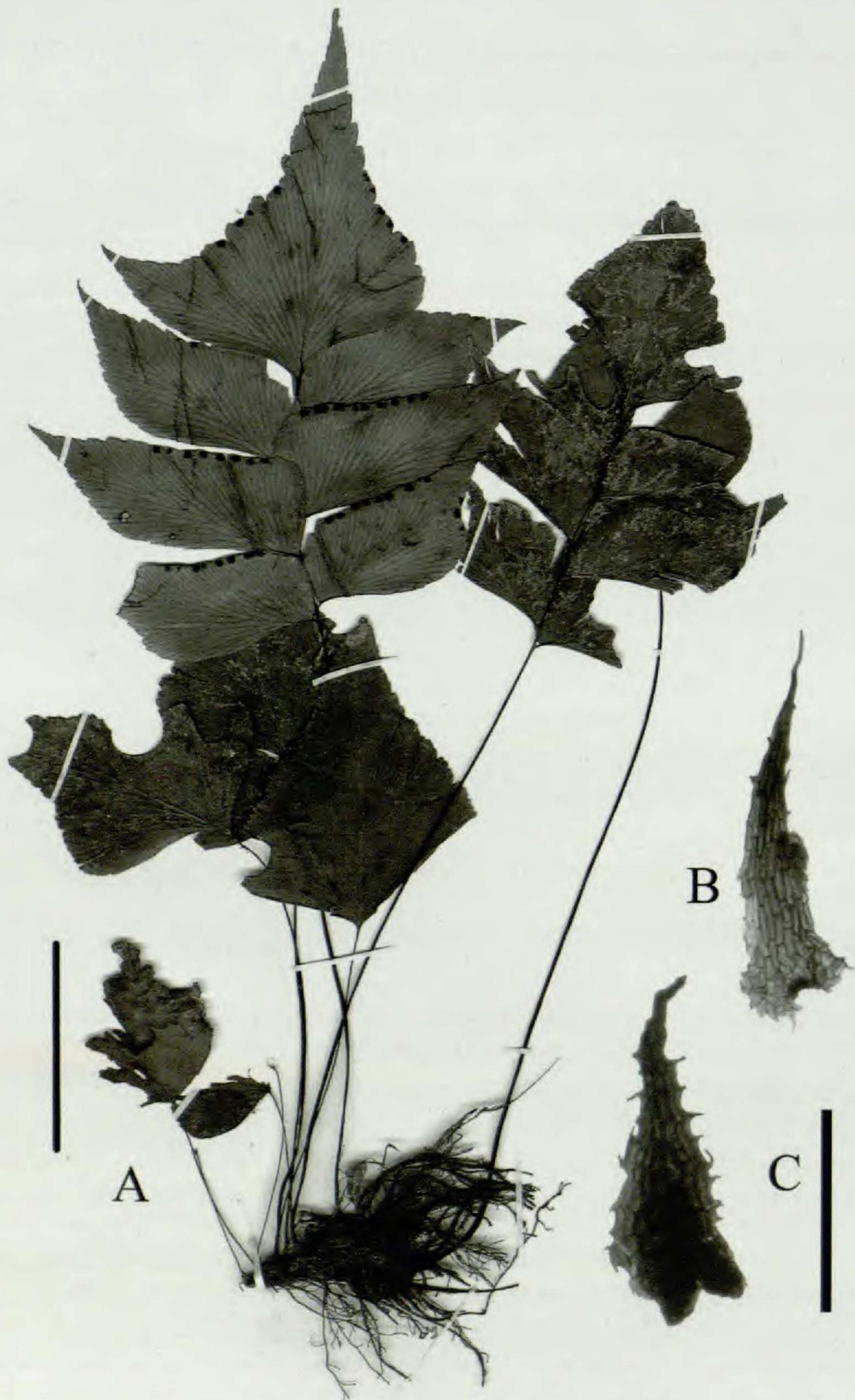


FIG. 1. Holotype of *Adiantum mariposatum* (B. Øllgaard, S. Roth, & C. Sperling 35582, AAU). A. Habit showing entire and pinnate fronds (scale bar equals 5 cm). B. and C. Stipe and rhizome scales, respectively, showing margins with spreading and recurved spines (scale bar equals 1 mm).

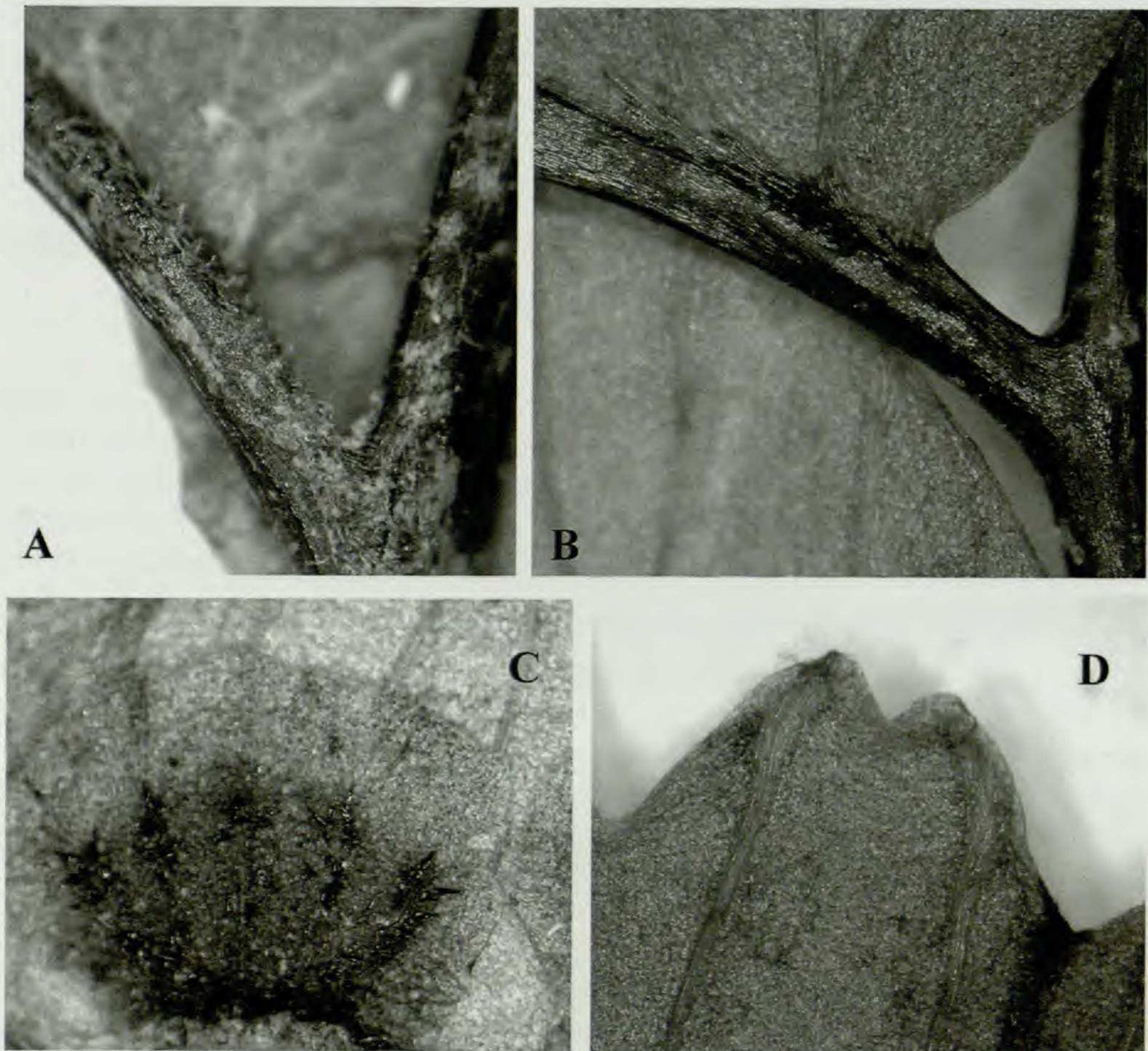


FIG. 2. Holotype of *Adiantum mariposatum* (B. Øllgaard, S. Roth, & C. Sperling 35582, AAU). A. Adaxial view of rachis and segment with minute scattered hairs. B. Abaxial view of glabrous rachis and segment stalks. C. Sorus with minute red-brown hairs following receptacle lines. D. Segment margin with distally dilated veins.

bases basiscopically excavate, acroscopically truncate, margins shallowly dentate, apex acuminate; *veins* free, dilated distally, ending in marginal teeth or arcuate toward the nearest distal tooth, prominulous, markedly so adaxially, lacking venuloid idioblasts between veins; *terminal blade segment* broadly trullate, 80–100 × 65–80 mm; *sori* discontinuous, 2–16 per segment, widely depressed ovate, 2–3 × 2–3 mm, false indusia stramineous, transparent when young, becoming brittle and black with age, with small reddish-brown hairs along receptacle lines, margins erose; *spores* trilete, stramineous-gold, 23–44 μm.

This species is known only from Pastaza Province in the eastern foothills of the Ecuadorian Andes. It grows in wet forests and on rocky riverbanks, in shade.

The epithet for this new species makes reference to the large butterfly-shaped segments.

PARATYPE.—ECUADOR. **Pastaza**. Mera-Shell Mera, ca. 2 km E of Mera, at bridge over Río Alpayacu, 78°06'W 01°28'S, 1100 m, 21 Jan 1992, B. Øllgaard *et al.* 99574 (AAU).

Adiantum mariposatum can be distinguished by having compact, pinnate fronds that reach about 30 cm, large glabrous segments that overlay the rachis, adaxial pubescence along the rachises and segment stalks, and by the broadly ovate, sparsely pubescent indusia. It can be confused with *A. anceps*, which reaches 2 m, has 1–3 pinnate fronds, and is completely glabrous along the rachises, segment stalks, and indusia.

As currently circumscribed, *Adiantum mariposatum* falls within the *A. tetraphyllum* group as delineated by Tryon and Tryon (1982). This group has 1- or 2-pinnate blades, axes with scales or adaxial pubescence, sessile to short-stalked segments, and few to many indusia. *Adiantum humile* Kunze., *A. latifolium* Lam., *A. obliquum* Kaulf., *A. petiolatum* Desv., *A. tomentosum* Klotzsch, *A. pulverulentum* L., and *A. tetraphyllum* Humb. & Bonpl. ex Willd. are other members in this group. All of these species however, have conspicuous venuloid idioblasts (silica bodies) on laminar surfaces between veins (Sundue, 2009), a character that is lacking in *A. mariposatum*. This character was not mentioned in Tryon's 1982 circumscription of the Adiantoid groups, but is now thought to be relevant in determining systematic relationships (Sundue, 2009).

Adiantum mariposatum may be more closely allied to the more widespread *A. urophyllum* Hook., which lacks visible venuloid idioblasts, has 2-pinnate leaves (juvenile leaves may be 1-pinnate), more numerous and smaller segments with long tapering apices, densely pubescent stipes, rachises, and segment stalks, and sparsely pubescent to often glabrous indusia. The small red-brown hairs on the indusia of *A. mariposatum* tend to follow the receptacle lines, whereas the hairs of *A. urophyllum* appear randomly scattered across the indusia. No other *Adiantum* species observed during this study displayed a similar linear arrangement of pubescence along the indusia. This character appears to be unique to *A. mariposatum*. Additional *Adiantum* species with pubescent indusia include, *A. terminatum* Kze. ex Miq., *A. trichochlaenum* Mickel & Beitel, *A. tricholepis* Fée, and *A. curvatum* Kaulf. *Adiantum terminatum* and *A. trichochlaenum* are 2-pinnate, have indument abaxially along the rachises, and venuloid idioblasts between the veins on both surfaces of the pinnules. *Adiantum tricholepis* and *A. curvatum* are 3- or 4-pinnate, and lack venuloid idioblasts.

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