A NEW SPECIES OF *IONOPSIS* (ORCHIDACEAE: ONCIDIINAE) AND A RECONSIDERATION OF THE GENUS *KONANTZIA*[1]

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Abstract. The monotypic genus *Konantzia* is referred to the synonymy of *Ionopsis* on the basis of floral anatomy and the presence of nectar-producing horns on the lip. A new species of *Ionopsis* from Ecuador, *I. papillosa*, is described and illustrated.

Keywords: Ecuador, *Ionopsis, Konantzia*, morphology, Oncidiinae, Orchidaceae.

The monotypic genus *Konantzia* was established by Dodson and Williams (1980) based on a plant M. Konantz collected in the province of Chimborazo, Ecuador. Additional specimens of *K. minutiflora* Dodson & N. H. Williams were collected in subsequent years in the provinces of Cotopaxi and Manabí, and the genus is now known to be endemic to western Ecuador. The plants are epiphytes in wet montane cloud forest (Dodson and Williams, 1980; Dodson and Marmol-Dodson, 1980). The critical characters the authors selected to delimit the genus within the Oncidiinae were the monophyllous pseudobulb with a vestigial leaf, the labellum without a spur, and the footless column without wings. Within Oncidiinae, the scale-like leaf at the apex of the pseudobulb and the thick, foliaceous cataphylls occur only in the distantly related genus *Erycina* Lindl., and these characters may be regarded as convergent features.

On the basis of the original observations of floral morphology, Dodson (1993) suggested a relationship of *Konantzia* with other Oncidiinae genera without a spurlike or gibbous structure at the rear of the flower, proposing *Quekettia* Lindl., *Stictophyllorchis* Dodson & Carnevali, and *Trizeuxis* Lindl. as its closest relatives.

An opportunity to examine closely the floral anatomy of *Konantzia* arose when A. Olmi collected in Ecuador and brought to flower in Italy a plant very similar to *K. minutiflora*. The plant differed somewhat from *K. minutiflora* (in size, flower color, and shape and indumentum of the labellum) but without a doubt represented a closely related species. The main noteworthy character, however, was the presence at the base of the lip of two rudimentary but functional nectariferous horns (Fig. 1). In fact, a relatively large amount of nectar was found in all the examined flowers contained within the cup formed by the connate base of the lateral sepals. Similar horns can be observed on the lip of *K. minutiflora*, but their glandular nature may have been overlooked in this species because of the small size of the flowers or perhaps because the flowers were not examined in vivo. On that basis, *Konantzia* would best be placed in the *Scelochilus* Kl. alliance (or the Ionopsidinae sensu Senghas, 1995). Members of the *Scelochilus* alliance are generally characterized by a nectar spur formed by the connate proximal portion of the lateral sepals, as well as by tissues of other floral parts, and in most of the species one or two nectar-producing horns are also present.

In their realignment of the *Scelochilus* alliance, Chase and Bennett (1993) overlooked *Konantzia* and did not include this genus in the key to this group of genera. This interpretation was followed by Senghas (1996), who formally assigned *Konantzia* to subtribe Capanemiinae, characterized by the lack of a spur, placing it close to, among other genera, *Sanderella* Kuntze, *Buesiella* C. Schweinf., *Goniochilus* M. W. Chase, *Polyotidium* Garay, *Quekettia*, *Trizeuxis*, and *Stictophyllorchis*. Although Senghas (1996) suggested the need for more detailed anatomical studies on the fine floral

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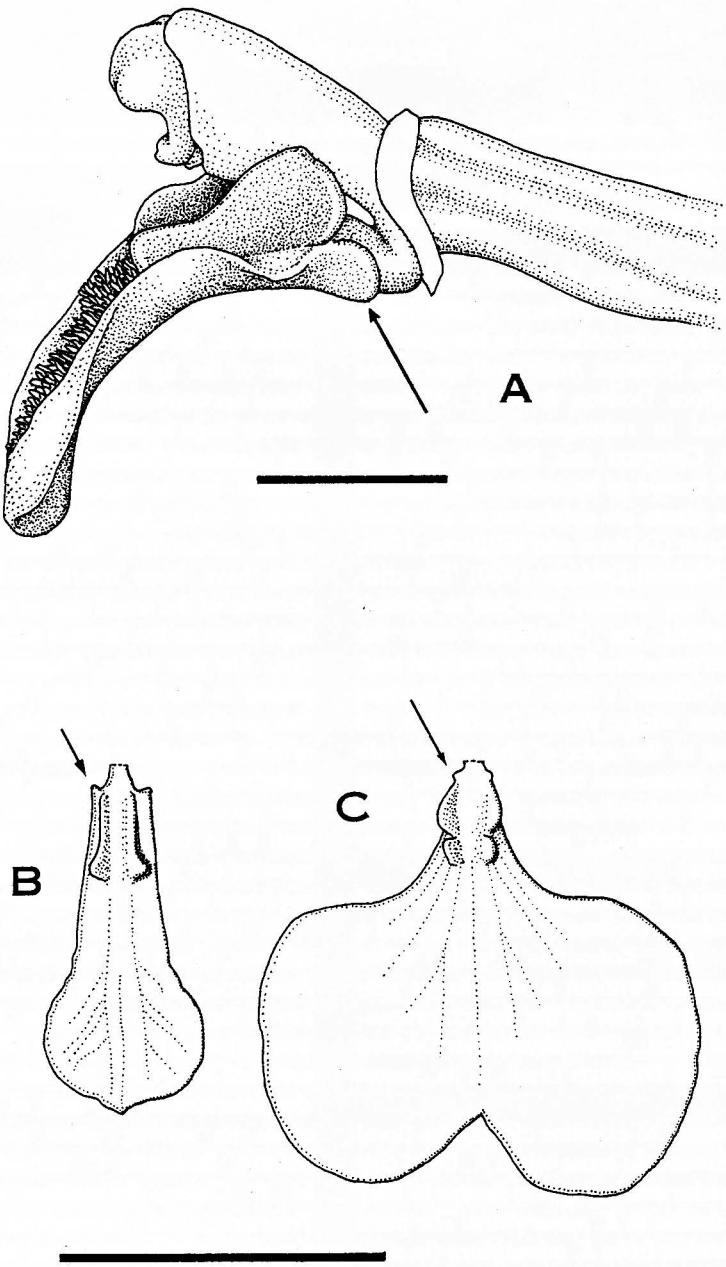

FIGURE 1. *Ionopsis papillosa* Pupulin. A, lateral view of column and lip (sepals and petals removed) showing the nectariferous horns (see arrow); B, lip of *I. satyrioides* (Sw.) Rchb.f. (*F. Pupulin 309*, CR); C, lip of *I. utricularioides* (Sw.) Lindl. (*S. Mior s.n.*, Herb. Pupulin). B & C show the possible relict or early developmental stages of nectariferous horns (see arrows). Bars = 1 mm (A); 1 cm (B–C).

structures of *Konantzia*, he nonetheless reported the presence of a small nectar cavity at the base of the lip, a character atypical for a genus with a specialized synsepalum already serving as a nectary.

Following Chase and Bennett's key to genera of Oncidiinae with a nectar cavity at the rear of the flower (Chase and Bennett, 1993), one may be tempted to reduce *Konantzia* to *Scelochilus*. However, the footless column suggests a close relationship to *Ionopsis*, with which it also shares the bilamellate callus at the base of the labellum, the shape of the column, and a triangular to rounded stigma. Furthermore, both *Ionopsis satyrioides* and *I. utricularioides* present two small, rudimentary projections at the base of the lip, which may represent either a relict or early developmental stages of nectariferous horns (Fig. 1).

The genus *Ionopsis* has a wide variety of plant architectures with the inclusion of *Konantzia*, but differences in vegetative patterns within a single genus are common in twig epiphytes and in the *Scelochilus* alliance, and it may be observed also in *Rodriguezia* Ruiz & Pav., *Scelochilus*, and *Plectrophora* H. C. Focke. On the basis of this evidence, *Konantzia* is hereby reduced to the synonymy of *Ionopsis*. Additional data from phylogenetic studies based on DNA sequences of ITS, *mat*K, and *trn*L-F totally support uniting *Konantzia* and *Ionopsis* (N. H. Williams, pers. comm.).

Ionopsis H. B. K., *Nova Genera et Species Plantarum* 1: 279 (folio ed.); 348 (quarto ed.). 1815.

Type species: *Ionopsis pulchella* H. B. K., l. c., t. 83. 1815. TYPE: COLOMBIA. Bolívar: *Inter Carthaginem et Bugam, A. von Humboldt & A. Bonpland 1892* (Holotype: P, *n. v.*).

Synonym: *Konantzia* Dodson & N. H. Williams, Phytologia 46: 387. 1980. *syn. nov.*

Ionopsis minutiflora (Dodson & N. H. Williams) Pupulin, *comb. nov.*

Basionym: *Konantzia minutiflora* Dodson & N. H. Williams, Phytologia 46: 387. 1980. TYPE: ECUADOR. Cotopaxi: Pallatanga, road at Caluma, 800 m, collected by Max Konantz, August 1977, *C. H. Dodson 6832* (Holotype: SEL, *n. v.*).

Ionopsis papillosa Pupulin *sp. nov.* TYPE: ECUADOR. Pichincha: Santo Domingo de Los Colorados, 500 m, September 1995, collected by A. Olmi, flowered in cultivation 28 April 1997, *F. Pupulin 402* (Holotype: SEL; Isotype: Herb. Pupulin). Fig. 2.

Species I. minutiflorae (Dodson & N. Williams) Pupulin similis, sed planta et inflorescentia minoribus, labello albo lamina papillosa, petalis purpureo maculatis differt.

Plant epiphytic, cespitose, erect, with short rhizome. Roots flexuous, filiform. Pseudobulbs ovate, slightly complanate, 1.2 cm long, 0.9 cm wide, monophyllous, concealed at the base by 3–5 conduplicate, imbricating, foliaceous sheaths, articulate near the base; foliate blade elliptic-ovate, acute, minutely apiculate, very fleshy, green, 2–4.2 cm long, 1.1–2.0 cm wide. Terminal leaf aborted, about 3 mm long. Inflorescence paniculate, erect, produced from the axil of the uppermost leaf, to 24 cm long, provided with many tubular to slightly spreading bracts, each branch densely few flowered, bearing 5–7 flowers at apex. Floral bracts triangular-ovate, acute, to 1.2 mm long, 1.5 mm wide. Pedicellate ovary linear clavate, to 5 mm long including the pedicel. Flowers very small, white with petals blotched of purple at apex, the lip white with yellow callus. Dorsal sepal elliptic-obovate, obtuse, apiculate, erect surrounding the column, 2.8 mm long, 1.2 mm wide. Lateral sepals connate for about 2/3 of their length, elliptic, deeply saccate at the base to form a gibbous nectary, the synsepalum 2.5 mm long, 2.2 mm wide, the apexes obtuse, apiculate. Petals obliquely elliptic-oblong, obtuse, alongside labellum and column, 3.2 mm long, 1.5 mm wide. Labellum cuneate-spatulate, with a short claw, obtuse to retuse, abaxially densely papillose, 2.5–3.2 mm long, 1.5–2.0 mm wide, provided at the base with 2 rounded, short, laterally flattened nectar horns protruding into the nectary; callus formed by 2 fleshy carines, subquadrate to subfalcate at the base, slightly narrowing at apex. Column clavate, with 2 vestigial, rounded, stigmatic arms, the stigma triangular-obcordate, 1.3 mm long. Anther cap operculate, strongly carinate, glabre. Pollinia 2, obovate, laterally complanate, on a triangular-ligulate stipe, basally attenuate; viscidium ligulate, white.

Etymology: from the Latin *papillosus*, papillose, in reference to the indumentum of the lip.

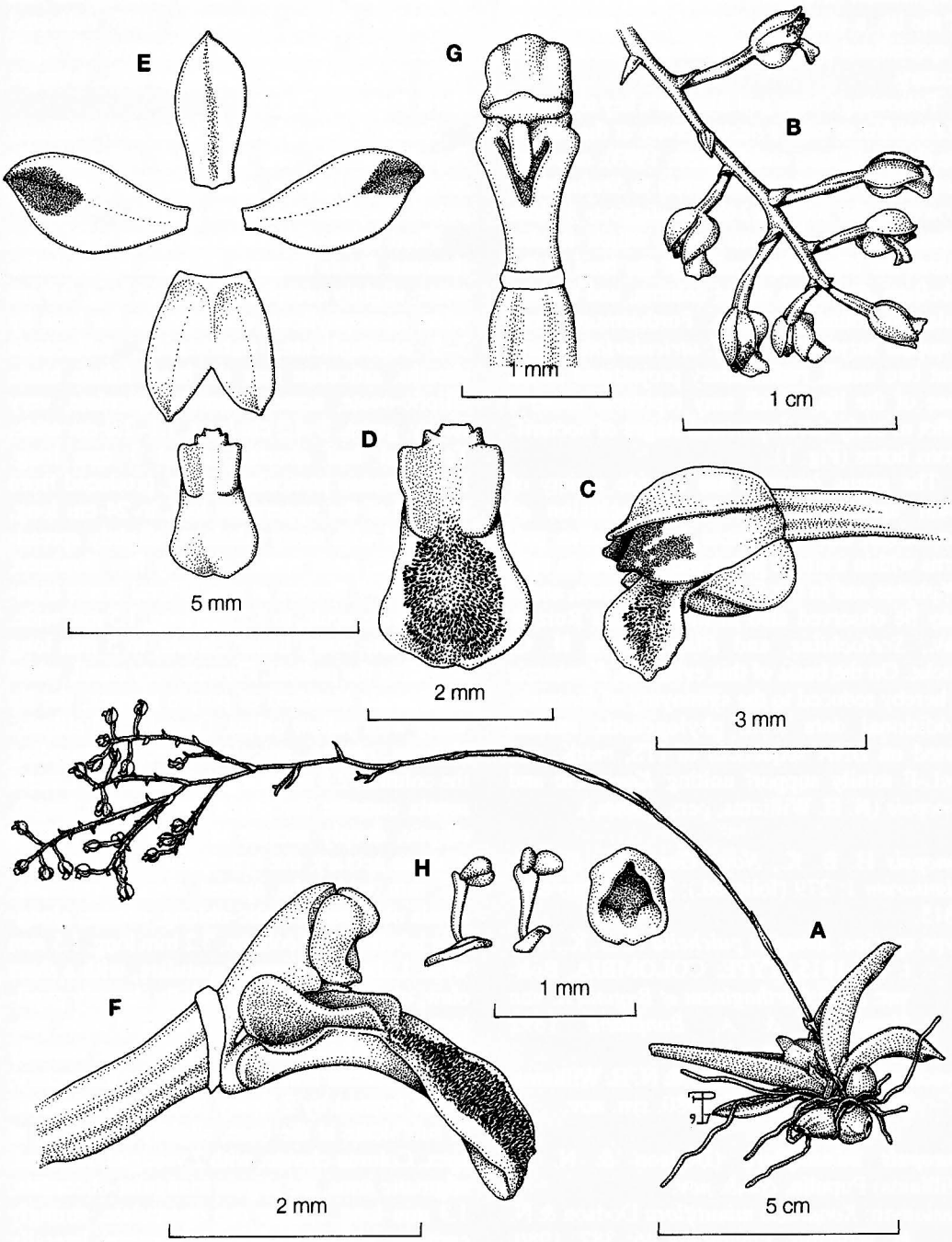

FIGURE 2. *Ionopsis papillosa* Pupulin. A, habit; B, apex of the inflorescence; C, flower; D, lip; E, perianth, flattened; F, column and lip, lateral view; G, column, abaxial view; H, pollinarium and operculum. *(F. Pupulin 402).*

Distribution: endemic to Ecuador.

Ecology: epiphytic in rain forests. Rains on the western flanks of the Cordillera Occidental are heavy, and they may exceed 3000 mm a year at Santo Domingo de Los Colorados, where climate is generally temperate with an average temperature of about 22.5 C (Terán, 1990). The plant flowers in cultivation in April.

Ionopsis papillosa differs from *I. minutiflora* mainly in the shape and indumentum of the labellum (densely papillose in *I. papillosa* vs. nonpapillose in *I. minutiflora*). Furthermore, the plant and the inflorescence are smaller in the former, whereas in *I. minutiflora* the labellum is spotted with purple and white petals; in *I. papillosa* the labellum is white with a yellow callus, and the petals have two large blotches of purple at the apex.

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