

LEPANTHES YUVILENSIS, A NEW SPECIES FROM OAXACA, MEXICO

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ABSTRACT

Lepanthes yuvilensis Catling is described from a locality near the city of Oaxaca. The new species is related to *Lepanthes pollardii* Hespeneheide.

RESUMEN

Se propone *Lepanthes yuvilensis* Catling como nueva especie. Esta planta fue colectada cerca de la Ciudad de Oaxaca y está estrechamente relacionada con *Lepanthes pollardii* Hespeneheide, del sur de Oaxaca y Guerrero. *Lepanthes yuvilensis* se distingue de *L. pollardii* por sus hojas más angostas, no conduplicadas en la base, inflorescencias de 3.5-10 mm de largo, flores ovadas o elípticas con sépalos amarillos, y lóbulos superior e inferior del labelo del mismo ancho.

On the northern edge of the city of Oaxaca, the steep face of a spur of the Sierra de Juárez rises over 1500 metres above the valley floor. Rainfall increases up this slope from the dry rainshadow of the valley to the lush, humid forest of the peaks. The valley floor is dry through the winter months, but at the higher elevations no month is without rain, and a week without showers is unusual. Even during the winter, fogs cover the upper slopes quite frequently, and if a north wind blows, the mist may last several days.

The altitudinal gradients of rainfall, humidity and temperature are associated with substantial changes in the composition of the vegetation, and with so many different environments available in a short distance, the flora is very rich and varied. It is also far from well-known. Several undescribed orchid species occur in the forest, both terrestrials and epiphytes. The genus *Lepanthes*, which has been much neglected in Mexico, is represented by at

least three species in this region of the Sierra de Juárez. Two of these are variants of *Lepanthes stenophylla* Schltr. The other is a new species related to *L. pollardii* Hespeneheide and is described here.

Lepanthes yuvilensis Catling, *sp. nov.*

Herba epiphytica caespitosa 4-5.5 cm alta, foliis ellipticis, inflorescentiis ad dimidium foliorum attingentibus, bracteis florum glabris, sepalis flavis ovatis acutis marginibus glabris, sepalis dorsali 2.7-3.2 mm longo, sepalis lateralibus ultra dimidium conjunctis, petalis lobis duobus oblongis inaequalibus, labello bilobato laminis glabris circa 1.4 mm longis inter laminas sigmoideas appendice ciliato.

Epiphytic herb, caespitose, 4-5.5 cm tall. **Roots** to 6 cm long and 0.75 mm in diameter. **Stems** monophyllous, 0.7-3.6 cm long, concealed by 2-5 funnelliform sheaths; **sheaths**

long-acute at the apex, ciliate along the reflexed margin, hispidulous along the veins. Leaves ascending, the blades elliptic, obtuse and tridentulate at the apex, glabrous, thick, marginate, green above and below, 10-24 mm long, 5-7 mm wide. **Petiole** 2-7 mm long. **Inflorescences** racemose, rather straight, up to 3 per stem, apparently one produced each year, 5-12-flowered with one flower open at a time, 3.5-10 mm long, extending to about one half of the length of the leaf at maturity, borne by a filiform peduncle 3-6 mm long arising from the stem apex within uppermost cauline sheath. **Floral bracts** tubular-funnelform, glabrous, 1-1.3 mm long. **Pedicel** 0.7-1.7 mm long. **Pedicellate ovary** 1.5-2 mm long. **Flowers** ovate or elliptic-ovate, 5.3-6 mm long, 3.1-3.4 mm wide, with the dorsal sepal pointing toward the leaf base, yellow with a deeper yellow and red in the center. **Dorsal sepal** ovate, acute to shortly acuminate, concave, glabrous, yellow, 3-veined, 2.7-3.2 mm long, 2.5-2.7 mm wide. **Lateral sepals** ovate, acute, glabrous, yellow, each 2-nerved, 2.6-2.8 mm long, together 3.1-3.4 mm wide, flat or somewhat marginally reflexed, joined for more than one half of their length. **Petals** glabrous, transversely extended into two oblong lobes, the upper half of the upper lobe red, basal half and lower lobe yellowish-orange, but with some red along inner side of the lower lobe; upper lobes larger, sometimes overlapping, 1.5-1.6 mm long, 0.6-0.7 mm wide; lower lobes divergent, 1.3-1.4 mm long, 0.3-0.4 mm wide. **Lip** mostly glabrous, bilobed, barely cordate at the base, forcipate at the apex; the blades ca. 1.4 mm long and 0.3 mm wide, yellowish-orange with red along inner margin of upper lobe; the connectives cuneate, with a sinus opposite the point of adnation with the column and with a ciliate appendix ca. 0.2 mm below the sinus. **Column** pinkish-red, arcuate, dilated above, ca. 1 mm long and ca. 0.5 mm wide, the stigmatic surface ventral. **Anther cap** cordate, ca. 0.6 mm long and 0.4 mm wide, pinkish-white. **Pollinarium** ca. 0.7 mm long, yellow, the viscidium amber.

HOLOTYPE: MEXICO: OAXACA: on oaks in moist barranca in pine-oak zone, along hwy 175 (Tuxtepec road), 18 km from Pan American highway near Oaxaca, 17° 10' N, 96° 37' W,

elev. 2650-2850 m, 21 July 1987, P.M. Catling M54, E.W. Greenwood, F.H. Catling, AMO. ISOTYPES: DAO, personal collection.

ADDITIONAL MATERIAL: *L-154* including photographs and drawings in Glenn E. Pollard's *Lepanthes* notebook (at AMO), the material from a location 3.2 km from the Tuxtepec highway on the road to Yuvila at 2476 m, which is a few kilometers from the type locality. The data given is 27 February 1972. *L-162* drawings and notes (also in Pollard's notebook) representing material from the type locality and dated 26 December 1975.

DISTRIBUTION AND ECOLOGY: This species is presently known only from an apparently dry but frequently foggy portion of the oak-pine zone at 2400-2850 m in the Sierra de Juárez of Oaxaca. It occurs on oaks in deep, moist and steep barranca which acts as a channel for cool damp air. Associated orchids include two variants of *Lepanthes stenophylla* Schltr., *Alamania punicea* Llave & Lex., *Artorima erubescens* (Lindl.) Dressler & Pollard, and *Lemboglossum cervantesii* (Llave & Lex.) Halbinger.

TIME OF FLOWERING: This species has been found flowering on 21 July and 27 February. The flowers, up to 12, are produced consecutively and flowering may continue throughout the year.

POLLINATION ECOLOGY: Nothing is known of the pollination of this species.

IDENTIFICATION: *Lepanthes yuvilensis* is closely related to *L. pollardii* Hespeneheide which it resembles very closely in flower colour, appendix of the labellum and various other features of floral morphology including the fact that the lateral sepals are connate for approximately 2/3 of their length (see Hespeneheide 1973; Thurston and Thurston 1978). The two species can be distinguished in the following manner:

Leaves elliptic, 5-7 mm wide, not conduplicate at the base; inflorescences 3.5-10 mm long; flowers ovate or elliptic-ovate with the sepals yellow, 3.1-3.4 mm wide; upper and lower lobes of the lip equally wide *L. yuvilensis*
Leaves obovate, 6.9-14 mm wide, conduplicate

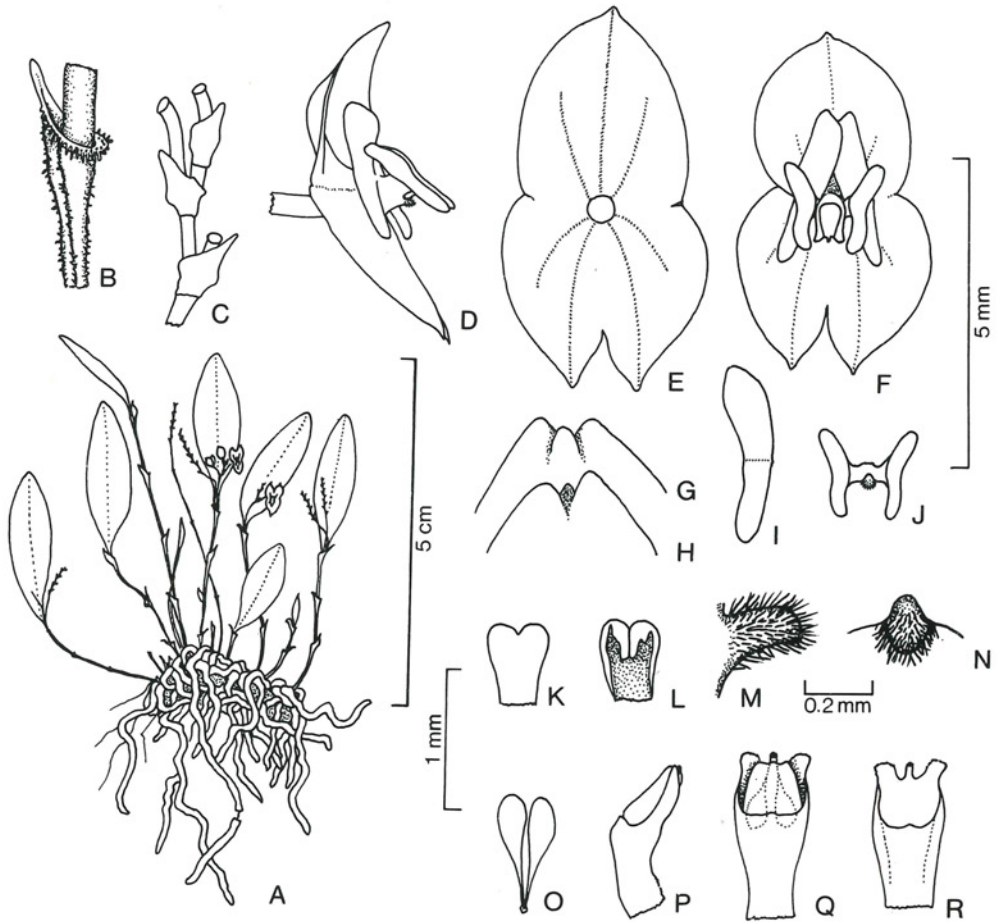


Fig. 1 *LEPANTHES YUVILENSIS* Catling. A, plant habit. B, section of stem with sheath. C, portion of inflorescence showing floral bracts. D, flower viewed from the side. E, sepals viewed frontally. F, flower viewed frontally. G, leaf tip from below. H, leaf tip from above. I, petal. J, lip. K, anther cap from above. L, anther cap from below. M, appendix viewed from the side. N, appendix viewed from above. O, pollinia. P, column viewed from the side. Q, column viewed from above. R, column viewed from below. Drawings by P.M. Catling, B to R with camera lucida.

at the base or not; inflorescences 11-20 mm long; flowers oblong-ovate with the sepals apricot yellow, 3.9 mm wide; upper lobe of the lip 2x as wide as the lower *L. pollardii*

Lepanthes pollardii is known from two locations, but both are in the western sierras (Río de la Y in the Sierra Madre del Sur of Oaxaca and the high sierra of Guerrero (Thurston and Thurston 1978). Since typical *L. pollardii* has not been found in the Sierra de Juárez where *L. yuvilensis* occurs, there is reason to believe that these two related species have different geographical distributions.

Lepanthes pollardii and *Lepanthes yuvilensis* appear not to have any close allies in Mesoamerica, but there are many similar species in the West Indies (e.g. *L. aurea* Urban from the Lesser Antilles, *L. wulfschlaegelii* F. & R. from Jamaica and *L. grisebachiana* Hesperheide from Cuba). The most similar West Indian species still differ substantially from *L. yuvilensis* and no species resembles it as closely as does *L. pollardii* Hesperheide.

In the key to the Mexican species of *Lepanthes* (Schultes and Dillon 1959), *L. yuvilensis* keys to *L. moorei* Schweinfurth (if one considers the petal lobes "conspicuously unequal". The type of *Lepanthes moorei* (Moore 5289, AMES) has broadly elliptic leaves 1.7 to 2.2 times as long as wide and orbicular lower petal lobes whereas *L. yuvilensis* has leaves 2-3 times as long as wide and oblong lower petal lobes.

Lepanthes ancylometala Dressler, *L. parvula* Dressler and *L. papillipetala* Dressler are all near *L. moorei* in the key, but the latter two are very small species less than 2 cm tall, also with rather broadly elliptical leaves. The former differs from *L. yuvilensis* in having smaller rose-pink flowers with the dorsal sepal less than 1.6 mm wide, upper petal lobes less than 1 mm long and petals toothed at the junction of the lobes (Dressler in Schultes and Dil-

lon 1959; Dressler 1475, AMES).

In the key to the *Lepanthes* of Guatemala (Ames and Correll 1952), *L. yuvilensis* keys to *L. appendiculata* Ames. *Lepanthes appendiculata*, however, has broadly ovate and acuminate-tipped leaves, and the flowers with V-shaped petals and the lip and column in the lower portion of the flower below the lower petal lobes, based on an examination of the type (Johnson 879, AMES) and other material from Guatemala.

Interestingly, the key provided by Ames and Correll (1952) may be faulty in suggesting that the lips of *L. stenophylla* and *L. oreocharis* are without an appendix ("ciliate apicule"), because Schlechter (1931) may have failed to describe and illustrate it. However, *L. yuvilensis* is still different from these two species. *Lepanthes stenophylla* has narrower flowers which are described and illustrated as having lateral sepals "usque ad medium fere connatis", and the leaves 2-3 cm long and approximately 6 times as long as wide (as the name implies). *L. oreocharis* differs from *L. yuvilensis* in having inflorescences that commonly exceed the leaves, lateral sepals connate no further than the middle, lip clawed, and floral bracts more or less muricate.

ETYMOLOGY: This species is named for the village of Yuvila near where the species was found.

CONSERVATION STATUS: At present this species is known only from two localities in the same general area of the Sierra de Juárez in Oaxaca. It is apparently local in this area in moist barrancas. Major threats to the survival of these species are tree cutting and fire, either or both of which could directly kill the plants or lead to their extirpation by opening and drying of the habitat.

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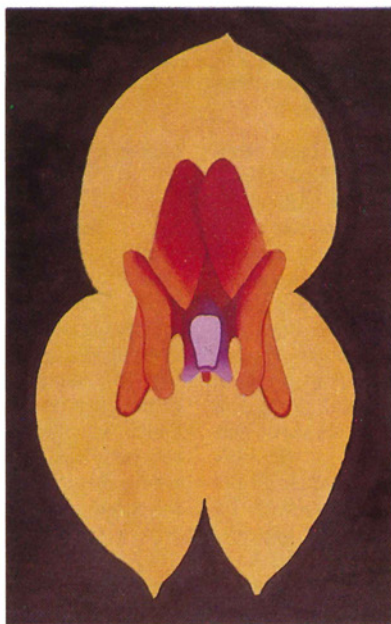


Fig. 2 Diagram of a flower of *Lepanthes yuvilensis* prepared using pantone colour markers.