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THOMAS B. CROAT & JOSEF BOGNER

Xanthosoma feuersteiniae (Araceae), a new species from southeastern Ecuador

Abstract

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Xanthosoma (sect. *Xanthosoma*) *feuersteiniae* is described from the Cordillera del Condor, an isolated massif in southeastern Ecuador. The species is compared with *X. viviparum* and *X. weeksii*.

Two moderately small species of *Xanthosoma* were described by Mike Madison, formerly of The Marie Selby Botanical Gardens (Madison 1978, 1981), namely *X. weeksii* Madison collected from the area of Puyo in Pastaza province, and *X. viviparum* Madison collected from a wide area in the Amazon lowlands from Napo province in Ecuador to Loreto, Madre de Dios and Junín Departments of Peru. Another small species has been discovered on the Cordillera del Condor in southeastern Ecuador in the Province of Zamora-Chinchipe. This is an isolated massif that arises prominently out of the Amazon basin, yet remains disconnected from the main range of the Andes to the west. The area is well known for its endemism, so it is not surprising to find another possibly endemic species. This new species, *X. feuersteiniae,* is compared with the aforementioned two other small to modest-sized *Xanthosoma* species from the Ecuadorian Oriente.

Xanthosoma feuersteiniae Croat & Bogner, **sp. nov.**
Holotype: Ecuador, Morona-Santiago, along road from Patuca to Santiago through the S edge of the Cordillera de Cutucú, c. 25 km E of Patuca, c. 700 m, *Betsy Feuerstein in Croat 84927* (MO; isotypes: B, K, M, QCNE, S, US) – Fig. 1-2.

Herba terrestris ad 20 cm alta; internodia brevia, 0.6-1.5 cm diam.; *petioli* 12-16.5 cm longi; *laminae* anguste ovatae, 12-20 × 6.5-9.5 cm, cordulatae vel truncatae ad basim, purpureae abaxialiter; *nervis* primariis lateralibus 4-6 utroque. *Pedunculus* 5.7-10 cm longus, 2-4 mm diam.; *spatha* 7-9 cm longa; *tubus* 2-3 cm longus, 6-8 mm diam., viridis; *lamina* alba, 4.5-6 × 0.8-1.5 cm; *spadix* 4-6 cm longa, pars pistillata 1-1.5 cm longa, 3-4 mm diam., crema, pars staminata 2.8-4 cm longa, pars sterilis 0.4-0.5 cm longa cum 2-3 seriebus synandrodiorum.

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Fig. 1. *Xanthosoma feuersteiniae* – A: leaves, lower face purplish; B: habit with inflorescence; C: close-up of inflorescence. – Photographs by Conservatoire and Jardins Botaniques de Nancy from a plant [no. 2003. 3.265], of the type collection (A) and of cuttings of that (B, C), all cultivated at the Conservatoire and Jardins Botaniques de Nancy.

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Terrestrial herb, evergreen, glabrous. *Stems* erect, 0.6-1.5 cm in diam. internodes short. *Leaves* erect-spreading, clustered near apex of stem; *cataphylls* 10-11 cm long, 0.8-0.9 cm wide, green with irregular purple markings and small rounded spots, acute and purple at apex; *petioles* 12-16.5 cm long, sheathed from about the middle to $^2/_3$ of its length, medium green, heavily tinged purple towards apex, weakly glossy; *sheath* broadly spreading 7-9.7 cm long, the margins somewhat membranaceous, more lightly coloured, weakly reflexed, joining to form an acute and weakly free-ending (unfused) apex; free portion of petiole broadly and shallowly sulcate, the margins bluntly acute, 4 mm wide, 3 mm thick; *blades* narrowly ovate to lanceolate or somewhat elliptic, 15-20 × 6.5-9.5 cm, 2-2.1 times longer than wide, distally tapered and ± acute at apex, ending abruptly with a mucro c. 1 mm long, slightly cordulate to subcordate or truncate at base, subcoriaceous, dark green and semiglossy above, completely purple and slightly less glossy below, drying weakly glossy and yellow-green above, weakly glossy and purplish to medium yellow-green below; margins slightly undulate; major veins sunken and concolourous above, prominent and purplish below; *midrib* narrowly sunken above, thicker and slightly more purple than remaining lower face; *primary lateral veins* in 4-6 pairs, narrowly rounded, arising at a very acute angle, then spreading at an angle of 35-40°, finally loop-connected along the margin; *collective veins* in three series, etched-sunken above, raised below, the innermost 4-10 mm from the margins, the second c. 3 mm from the margin, the third antimarginal (c. 1 mm from margin), all extending to near the apex; *tertiary veins* in part sunken above, raised below; *reticulate veins* somewhat prominulous below. *Inflorescences* erect, usually solitary, *peduncle* 5.7-10 × 0.2-0.4 cm, terete, medium yellow-green tinged purple, matte. *Spathe* 7-9 cm long, medium green in the lower 2-3 cm, then becoming whitish with the outer margin and apex purplish, not constricted but somewhat flattened above the pistillate zone; *tube* 2-3 × 0.6-0.8 cm, medium yellow-green and matte outside, slightly paler and glossy within; *limb* 4.5-6 × 0.8-1.5 cm, flattening to 3.5 cm wide, white toward apex with the margin purplish, ± acute and hooked at apex. *Spadix* 4-6 cm long, adnate at base for 0.8 cm, shorter than spathe; *pistillate zone* cylindric, 1-1.5 × 0.3-0.4 cm, creamy white; *staminate zone* 2.8-4 cm long, fertile to apex, white, terete and 0.35-5 mm in diam. or somewhat flattened, tapered toward apex; *sterile zone* 0.4-0.5 × 0.25-0.3 cm, with 2-3 rows of synandrodes. *Pistillate flowers* densely arranged and without coherent styles; ovary ellipsoid, 1.2-1.3 × 0.8-1.1 mm, pale green, usually with three deeply intrusive placentae, ovules several, hemianatropous; stigma disk-like, 0.4-0.6 mm diam., darker green (drying brownish), ± sessile, no broadened style present. *Synandrodes* densely arranged, 1.5-2 × 0.8-1.4 mm, flattened apically, sunken medially. *Staminate flowers (synandria)* ± rounded, 1-1.1 mm high, 1-1.7 mm in diam., sunken in the centre and incised between the thecae (as seen from above), the lowermost synandria elongate, 2 mm long and 1 mm wide, merging imperceptibly with the rounded synandria above (uppermost synandria sometimes sterile); thecae lateral, c. 1 mm long, each opening by an apical pore, pores weakly depressed in the upper surface near the margin of the synandrium. *Pollen* 22 × 16-18(-22) µm, ellipsoid to ellipsoid-oblong, in tetrads, exine reticulate.

Eponymy. – The new species is named in honour of the naturalist and Ecuadorian explorer Betsy Feuerstein, who first located and observed the species.

Distribution. – *Xanthosoma feuersteiniae* is known for certain only from the type locality in Morona-Santiago in the Cordillera de Cutucú at c. 700 m elevation, but the species has also been observed by Betsy Feuerstein in Zamora-Chinchipe in the Cordillera del Condor near Los Encuentros at c. 760 m in premontane wet forest (Holdridge & al. 1971).

Distinction. – The species is a member of *Xanthosoma* sect. *Xanthosoma* and is distinguished by (1) its small size, (2) simple, narrowly ovate, glabrous leaf blades that are cordulate to truncate at the base and purplish on the lower face, and (3) the spathe that is not constricted and hooked at apex.

The species is similar to *Xanthosoma viviparum* Madison, but that species differs in having longer stems with conspicuous bulbils in the leaf axils, terete petioles, and blades markedly in-

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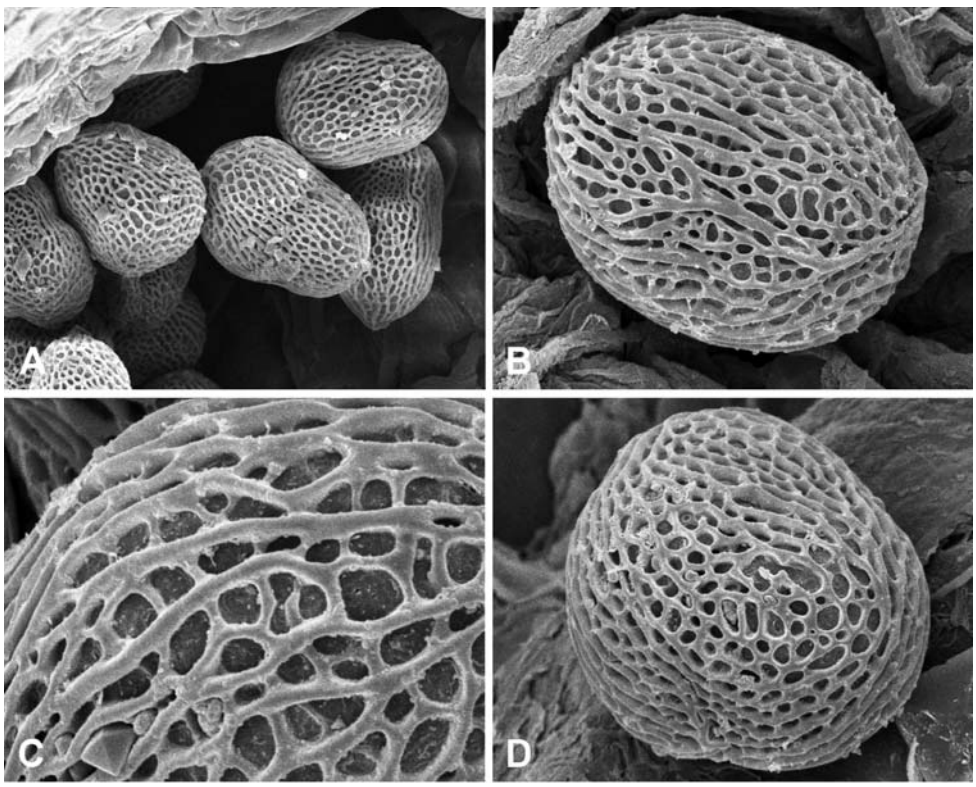

Fig. 2. *Xanthosoma feuersteiniae* – pollen tetrads; note the reticulate exine. – SEM photographs by M. Hesse, Wien; size of the pollen grains 22 × 16-18(-22) µm.

equilateral at the base and conspicuously undulate along the margins. In addition the inflorescence of *X. viviparum* is usually much longer (to 22 cm long) with peduncles 16-26 cm long.

Xanthosoma feuersteiniae might also be confused with *X. weeksii* Madison, another moderately small species, which lacks axillary bulbils, but that species differs in having thicker stems (up to 4 cm in diam. versus 0.6-1.5 cm in *X. feuersteiniae*), longer petioles (30-40 cm versus 12-16 cm in *X. feuersteiniae*), leaf blades with fewer primary lateral veins (2-4 versus 4-6 in *X. feuersteiniae*), as well as pistils 2 mm in diam. (versus up to 1.1 mm in *X. feuersteiniae*) and the shape of the spathe (constricted with a straight apex versus not constricted in *X. feuersteiniae*).

The pollen of *Xanthosoma feuersteiniae* (Fig. 2) is very similar to those of *Chlorospatha pubescens* Croat & L. Hannon, *C. ceronii* Croat & L. Hannon and *C. hannoniae* Croat, all of which have a reticulate exine.

Further material. – A living collection of *Xanthosoma feuersteiniae,* a part of the type plant, is in cultivation at the Botanical Gardens in Nancy, France, and vouchers of this same collection are preserved in the Botanische Staatssammlung München (M) and in the herbarium of the Conservatoire et Jardins Botaniques de Nancy (NCY) with the collector data *"B. Feuerstein s.n."*

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References

Holdridge, L. R., Hatheway, W. H., Liang, T. & Tosi, J. A. 1971: Forest environments in tropical life zones. – New York.

Madison, M. T. 1978: A new species of *Xanthosoma* from Ecuador. – Aroideana **1:** 24-25.

— 1981: Notes on *Caladium (Araceae)* and its allies. – Selbyana **5:** 342-377.

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