



## *Ichtyoselmis macrantha* subsp. *porphyrantha* (Papaveraceae), a new subspecies from West Yunnan and North Myanmar

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**ABSTRACT:** *Ichtyoselmis macrantha* subsp. *porphyrantha* J. Y. Shen & Q. B. Gong a new subspecies from West Yunnan and North Myanmar is described. The new subspecies differs from *Ichtyoselmis macrantha* subsp. *macrantha* by its outer petals purplish red and with minute red-purple spots as well as transversal lines on the apical swollen margin, and inner petals white with red-purple spots. It is distributed well to the Southwest of the distribution area of *I. macrantha* subsp. *macrantha*.

**KEY WORDS:** China, *Ichtyoselmis macrantha* subsp. *porphyrantha*, new subspecies, Papaveraceae, Yunnan.

### INTRODUCTION

*Ichtyoselmis* Lidén & Fukuhara consists of only one species, *Ichtyoselmis macrantha* (Oliver) Lidén. It is distributed in Central and Southwestern China as well as Northern Myanmar. *Ichtyoselmis macrantha* was first described under the genus *Dicentra* by D. Oliver (1891), based on a specimen collected by Augustine Henry, the famous plant collector. In 1961 Stern revised the genus *Dicentra* and put *Dicentra macrantha* under subg. *Chrysocapnos* sect. *Macranthos*. In 1970 Stern studied the pollen aperture variation and phylogeny in *Dicentra* and elevated section *Macranthos* to subgenus level. (Stern, 1961, 1962, 1970). Lidén *et al.* (1997), based on morphological characters (e.g. growth form, stigma, seed coat) as well as plastid sequence data, concluded that *Dicentra* was polyphyletic and erected the subgenus *Macranthos* to generic level, under a new name, *Ichtyoselmis*. *Ichtyoselmis macrantha* is the only species in this genus.

On the 12th of April 2018, the first author saw *Ichtyoselmis* flowering in the field in West Yunnan. Three specimens were collected and a large number of photographs were taken. After comparing the plants with specimens from e.g. Sichuan, Northeast Yunnan and Type specimens (*A. Henry 5846*), we found that the West Yunnan population differs by the purplish red (vs. greenish white to pale yellow) flowers. As the two colour morphs are geographically remote, and no intermediates are known, we conclude that subspecific status is warranted.

### TAXONOMIC TREATMENT

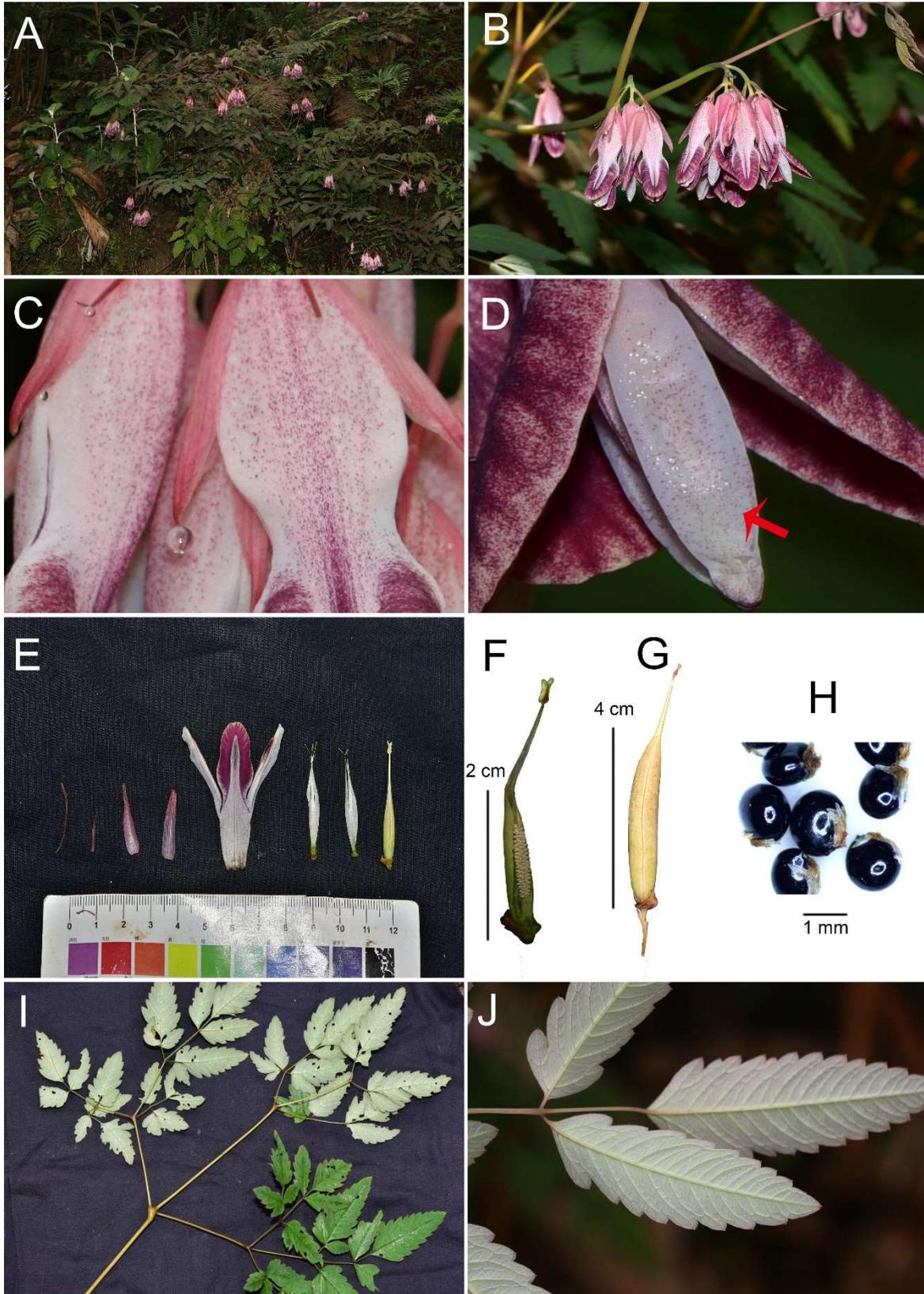
*Ichtyoselmis macrantha* (Oliver) Lidén subsp. *porphyrantha* J.Y. Shen & Q.B. Gong, *subsp. nov.*

紫花黄堇 Fig. 1

**Type:** CHINA, Yunnan, Dehong, Yingjiang, Zhina, Daniang Mountain, 25°16'53.84"N, 98°4'16.28"E, alt. 2,087 m, 30 March 2019, *J. Y. Shen 1420* (holotype: HITBC; isotype: HIB, HITBC, KUN).

**Diagnosis:** *Ichtyoselmis macrantha* subsp. *porphyrantha* is morphologically similar to *I. macrantha* subsp. *macrantha* but differs in purplish red outer petals with minute red-purple spots and transversal lines on the apical swollen margin. Inner petals *I. macrantha* subsp. *porphyrantha* are white with minute red-purple spots. (Table 1)

Herbs, perennial, erect. Rhizome horizontal, orange, long and slender. **Stems** 0.5–1.5 m tall, 5–15 mm in diameter at the base, 3–8 mm in diameter at the first node; lowermost leaves appearing ca. half way up the stem. **Leaflets** glabrous, glaucescent abaxially, green adaxially, ovate to oblong-lanceolate, 3–9 cm long, 1.5–2.5 cm broad, the margins with 4–15 mucronulate teeth on each side, the apex acuminate-mucronulate, the base cuneate, often oblique, the midrib slightly prominent beneath, the main lateral veins 4–14 on each side, the terminal petiolulate leaflet-laminae usually partially decurrent on the short petiolule; petioles 5–15 cm long, the rachis segments of the secondary portions of the leaf 3–15 cm long, the rachis segments of the tertiary portions of the leaf 2–10 cm long. **Inflorescences** terminal on stems, (1)3–15 flowered, peduncle 12–20 cm, (1)3–15 flowered. **Bracts** purplish red, ovate or oblong, 1–3 cm long, ca. 1mm broad, apex acute. **Pedicels** filiform, 5–20 mm long. **Bracteoles** 1–2, purplish red, linear-lanceolate, 5–15 mm long, ca. 1 mm broad; apex acute. **Sepals** 2, purplish red, oblong-lanceolate to obovate, 15–25 mm long, 2–5 mm broad. **Outer petals**, lower half purplish red and with red-purple spots, upper half violet, pandurate, slightly reflex outward in apical 1/3–1/2, 3.5–5 cm long, 1–1.8 cm



**Fig. 1.** *Ichtyoselmis macrantha* subsp. *porphyrantha*. **A.** Habit. **B.** Inflorescence. **C.** Outer petals, showing the red-purple spots. **D.** Inner petals, showing the red-purple spots (where the red arrow points). **E.** Flower dissection (From left to right: bract, pedicel bracteole, sepals, petals, stamens, pistil). **F.** Ovary opened longitudinally showing the ovules. **G.** Mature fruit. **H.** Seeds. **I.** Leaves. **J.** Abaxial leaf surface.

**Table 1.** Morphological comparison of *Ichtyoselmis macrantha* subsp. *macrantha* and *I. macrantha* subsp. *porphyrantha*.

Characters	<i>I. macrantha</i> subsp. <i>macrantha</i>	<i>I. macrantha</i> subsp. <i>porphyrantha</i>
Outer petals	white or pale yellow, sometimes with a greenish tint, never with any color spots.	lower half purplish red and with red-purple spots, upper half violet.
Inner petals	white, never with any color spots.	white, with red-purple spots.

broad, with ca. 10 dark red-purple nerves running transversally. **Inner petals** linear-oblong, white with minute red-purple spots, slightly expanded and with slightly convex inner faces in the upper half, 3.5–5 cm long; **Stamens** 6 (2 groups), 3 in a group, filaments connate below the anthers, filaments widest in middle (ca. 2 mm), narrowed at both ends. **Stigma** pandurate in outline, shallowly bilabiate at the apex. **Style** 8–12 mm long. **Ovary** bottle-shaped, ovules numerous. **Fruits** bottle-shaped, 3–5 cm long, 5–8 mm broad. **Seeds** numerous, suborbicular in outline, ca. 1 mm in diam., black, lustrous, with lobed elaiosome.

**Distribution and habitat:** Yunnan (Yingjiang County and Gongshan County), China, and Northeast upper Myanmar, 1900–2700 m. As the subspecies *macrantha* is mainly distributed from Central China to Eastern Yunnan, while the subspecies *porphyrantha* is distributed in Western Yunnan and Northern Myanmar, the two subspecies are geographically remote. In Yingjiang County there are two known populations (25°16'53.84"N, 98°4'16.28"E, alt. 2,087 m; 25°16'57.83"N, 98°3'24.12"E, alt. 2,166 m) in Yunnan Tongbiguan Provincial Nature Reserve, at 1900–2200 m. One population (where the type specimens were collected) is beside the road, close to Baiyan village, where villagers grow *Amomum tsaoko*, resulting in disturbance. The other population is by the roadside of a reservoir and the surrounding forest is well protected.

**Phenology:** Flowers were observed in late March and early April, mature fruits were observed in mid-May.

**Etymology:** This subspecies has red-purple petals, and thus the specific epithet “porphyrantha” was chosen. Chinese name is “紫花黄药” (zǐ huā huáng yào), “紫花” which means red-purple petals, “黄药” which refers to the genus *Ichtyoselmis*.

**Conservation assessment:** There are two known populations (ca. 40 individuals) of *Ichtyoselmis macrantha* subsp. *porphyrantha* in Daniang Mountain, Zhina, Yingjiang, Dehong, Yunnan. The new subspecies is also distributed in Myanmar and Gongshan County (Yunnan, China), and the investigation has not been thorough enough to fully understand the species natural distribution. According to IUCN Red List criteria (2019), this new subspecies should be assessed as Data Deficient (DD; criteria B1ab(i–v) + 2ab(i–v)).

**Additional specimens examined:** CHINA. Yunnan: Gongshan County, Kongdang village, altitude 2200 m, “plant 50 cm tall, flowers cyanine purple, lower half white”, 24 Mar. 1991, *Dulong River expedition team 4916* (KUN). MYANMAR: Northeast upper Burma, Tzi-tzo-ti, 9000 feet, 25°58'N, 98°29'E, “Plant of 3–4 ft., flowers drooping, pale blue-purple. Amongst scrub on the margins of thickets”, May 1925, *G. Forrest 26601* (E, US, NY).

### Specimens of *Ichtyoselmis macrantha* subsp.

**macrantha examined:** CHINA. Hubei: Jianshi County, Mar. 1889, *A. Henry 5846* (Holotype: K; isotype: NY, US, B, BM, HUH). Sichuan: Leibo County, 1 May 1987, *He M. Y. et al. 117041* (PE); Leibo County, 12 May 1983, *He M. Y. et al. 116743* (CDBI); E'meishan city, 8 May 1979, *Yang Y. B. 8296* (CDBI); E'meishan city, 26 May 1975, *Wang S. X. 375* (PE); E'meishan city, 4 May 1964, *Guan K. J. et al. 397* (CDBI); Leibo County, 2 Apr. 1964, *Yin K. P. et al. 42* (CDBI); E'bian County, 20 Jun. 1964, *Zhang Q. L. 64122* (IBSC); Leibo County, 2 Jun. 1959, *Sichuan economic plant investigation team 985* (CDBI); E'meishan city, 9 May 1957, *Yang G. H. 54450* (IBSC); Shimian County, 1955, *Xie C. J. 40340* (IBSC); E'meishan city, 13 May 1952, *Jiang X. L. et al. 30526* (IBK); E'meishan city, 2 Jul. 1952, *Jiang X. L. et al. 31422* (IBK); Hongya County, 1 Jul. 1939, *Yao Z. W. 3922* (PE); E'meishan city, without collection date, *Du D. H. 124* (PE); E'meishan city, 31 May 1935, *Yu. D. J. 124* (PE, CQNM); Pingshan County, 13 Jun. 1934, *Yu. D. J. 3117* (PE); E'bian County, 4 May 1932, *Yu. D. J. 630* (PE); E'bian County, 6 May 1932, *Yu. D. J. 700* (PE); E'bian County, 19 May 1932, *Yu. D. J. 829* (PE, IBSC); E'meishan city, 14 Jun. 1931, *Ching et al. 207* (PE); Mabian County, 10 May 1931, *Wang F. Z. 22897* (PE, WUK); E'meishan city, 25 Jun. 2013, *Li X. J. 440* (KUN); E'meishan city, 29 May 1940, *Sun X. L. 2235* (KUN). Chongqing: Nanchuan city, 4 May 1970, *Tan S. X. 700356* (IMC). Guizhou: Kaili City, 8 May 1959, *Qiannan expedition team 1172* (HGAS); Without detailed location, 26 Apr. 1936, *Deng S. W. 90173* (PE, NAS, IBK, IBSC); Suiyang County, 8 Feb. 2015, *An M. T. 2015020843* (GZAC); Daozhen County, 18 Apr. 2003, *Liu Z. Y. 2035926* (IMC); Without detailed location, 24 Apr. 1931, *Ting S. W. 90173* (AU). Hunan: Sangzhi County, 2 Sep. 1990, *Anonymous 639* (PE); Sangzhi County, without collection date, *Liao B. R. 639* (GSFI). Yunnan: Suijiang County, 14 May 1973, *Sun B. X. 246* (KUN); Dagan County, 23 Apr. 1986, *Yang Z. H. 868* (KUN). Guangxi: Ziyuan County, 17 Apr. 2014, *Ding T. 20140015* (IBK).

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