

lacking in some part of the outer series, though Kerr (1935) described them as 'Pappus exterior nullus'.

Erect herbs, 0.5 to 1.4 m tall. Leaves radical and cauline; radical leaves withering after flowering; cauline leaves lyrate, to 12 cm long, 5 cm wide, the terminal segment ovate, to 8 cm long, 5 cm wide, apex acuminate; petioles more or less winged, base auriculate. Heads numerous in a panicle; involucre cylindrical, 15 mm high, 2.5 mm across, phyllaries in 3 series, imbricate, innermost phyllaries 5 in 1 series. Florets 5 per head, corolla white inside and dark purplish brown outside. Pappus bristles of 2 sorts, inner pappus white, ca. 6 mm long, outer one white, ca. 0.25 mm long, partly lacking.

Habitat: on open limestone ridges, 1700–1900 m alt.

Specimens examined: [N] Chiang Mai: Doi Chiang Dao (10–1926, Put 367 BK, P-type; 12–1961, Smitinand & Anderson 7250 BKF, US; Koyama *et al.* T-39752, T-48810 KYO, T-39751 BKF, KYO).

Distribution: Endemic to Thailand.

2. *Cicerbita chiangdaoensis* H. Koyama sp. nov.

Haec species *Cicerbitae macrorhizae* et *Lactucae garrettii* affinis est, sed a *Cicerbita macrorhiza* et *Lactuca garrettii* foliis cordatis non pinnatilobatis et capitulis majoribus facile distinguitur.

Rhizomes thick, ca. 1.5 cm across, 5 to 8 cm long. Stems of the lower half procumbent, branched 3 to 5 times; stems of the upper half erect, branched again 3 to 5 times. Leaves radical and cauline; radical leaves caducous withering at flowering time; cauline leaves petiolate, petioles 3 to 7 cm long, sparsely pubescent; blade of cauline leaves cordate to kidney-shaped, 4–5 cm long, 4–6 cm wide, apex obtuse or rounded, base narrowly or broadly cordate, margins entire, mucronate, upper surface nearly glabrous, under surface densely pubescent, especially on the nerves, hairs brownish; upper leaves gradually smaller, blade triangular, petioles shorter. Heads 1–2 in a branch, ca. 3 cm across, peduncle 3–6 cm long; involucre tubular, 13 mm high, phyllaries with white membranous margins, imbricate in 3–4 series, innermost phyllaries 8 in 1 series, lanceolate, 2 mm wide, apex obtuse; outermost phyllary triangular, 2 mm long and wide. Florets 12–14 per head; corolla blue, 20–22 mm long, ligule ca. 4 mm wide, corolla tube ca. 4 mm long, pubescent; anther tube ca. 2.5 mm long, style branches ca. 2.3 mm long. Pappus bristles of 2 sorts, inner pappus white, ca. 6 mm long, outer one brownish, ca. 0.25 mm long. Achenes immature, 6 mm long, beak 1.5 mm long.

This species is similar to *Cicerbita macrorhiza* (Royle) Beauv. and *L. garrettii* Kerr, but differs from it in having cordate or kidney shaped leaves with long petioles.

Habitat: crevices of limestone rock on exposed slopes at the higher elevations in the mountains, 1800–2150 m alt.

Type collection. Thailand [N] Chiang Mai: Doi Chiang Dao (11–1962, Smiti-

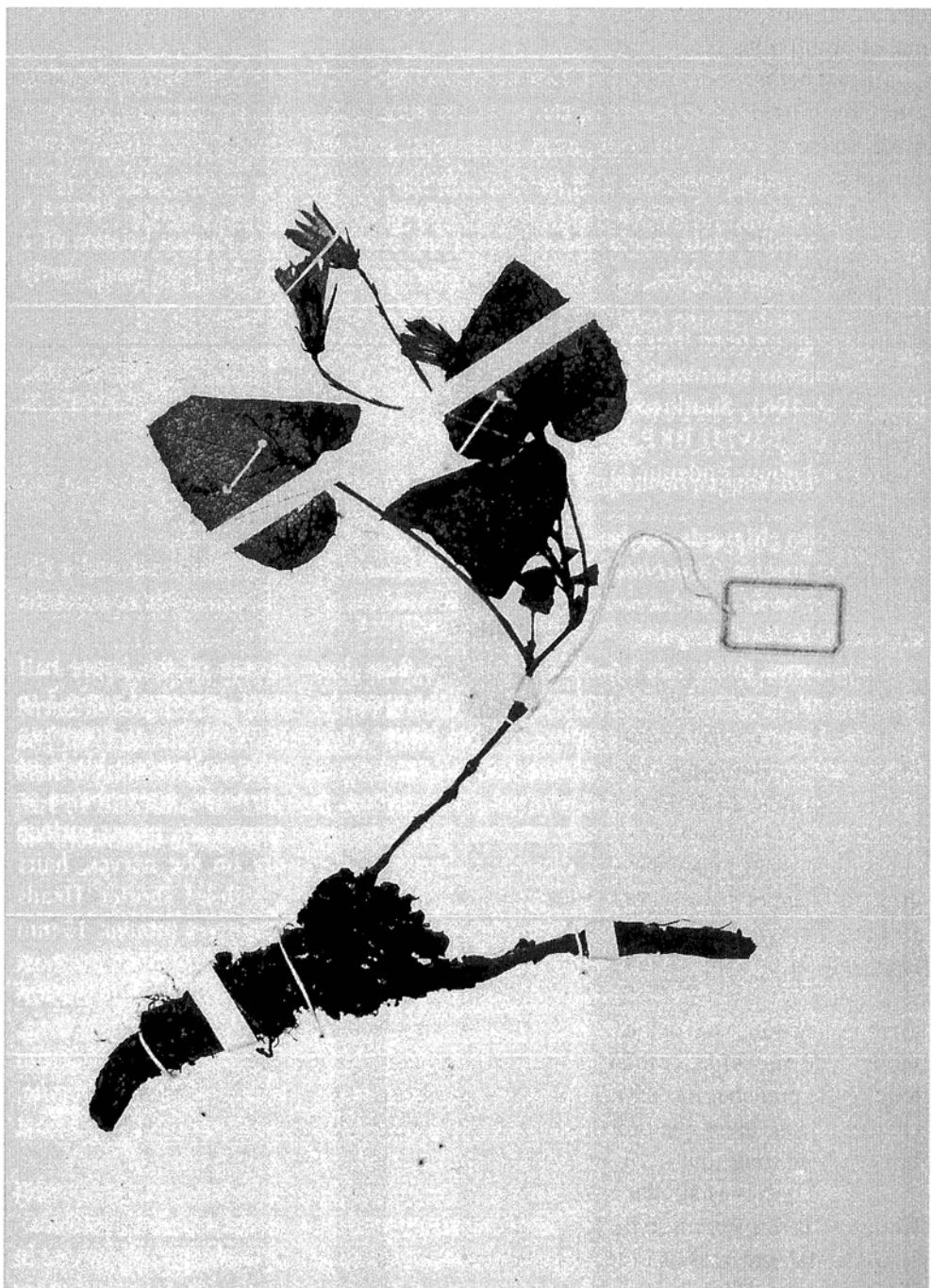


Fig. 1. Type specimen of *Cicerbita chiangdaoensis* H. Koyama.

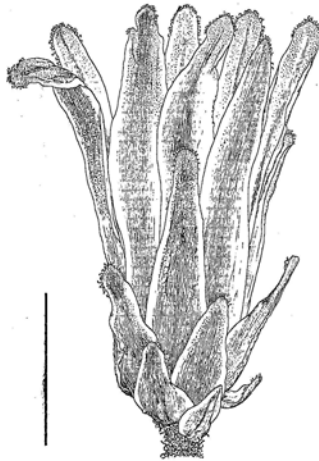


Fig. 2. Involucre of *Cicerbita chiangdaoensis*.

nand, Poore & Robbins 7810 BKF-holotype).

Other specimens examined: [N] Chiang Mai: Doi Chiang Dao (12-1961, Smitinand & Anderson 7294 BKF, US; 10-1979, Shimizu *et al.* T-21201 KYO, TNS).

Distribution: Endemic to Thailand.

3. *Cicerbita garrettii* (Kerr) H. Koyama comb. nov.

Lactuca garrettii Kerr in Kew Bull., 1935: 332 (1935), Fl. Siam. Enum., 2 (3): 297 (1936). Type from Doi Angka, Thailand.

This species is related to *Cicerbita macrantha* (C. B. Clarke) Beauv., but differs from it in having tubular involucre and peduncles with stipitate glandular hairs.

Procumbent herbs with thick roots; roots ca. 1.5 cm across, more than 8 cm long. Cauline leaves sessile, obovate, with a sinus on each side and winged long petiole, to 22 cm long including the petiole, to 6 cm wide, the terminal segment obovate, apex acute or acuminate, to 10 cm long, 6 cm wide. Heads 3 to 6 per raceme, ca. 4 cm across; involucre tubular ca. 15 mm high, phyllaries in 3 series, imbricate, innermost phyllaries 8 in 1 series. Florets 13-18 per head, corolla violet. Pappus bristles of 2 sorts, inner pappus white, ca. 8 mm long, outer one white, ca. 0.25 mm long.

Habitat: on mountain slopes of grassy fields and sometimes grassy banks along roads, 1800-2350 m alt.

Specimens examined: [N] Chiang Mai: Doi Inthanon (10-1979, Shimizu *et al.* T-18894 BKF, KYO; Konta *et al.* T-29779 A, BKF, KYO, TNS; Koyama & Phengkklai T-39970 [thick roots], T-39972 KYO, T-39987, T-39991 A, BKF, KYO); Doi Pa Kao (9-1931, H. B. G. Garrett 726 BKF).

Distribution: Endemic to Thailand.