ACADEMIA JOURNAL OF BIOLOGY 2024, 46(1): 109–114
DOI: 10.15625/2615-9023/20181

A KEY TO VIETNAMESE POLYGONACEAE GENERA, WITH NOTE ON EXTENDED DISTRIBUTION OF *Persicaria runcinata* IN VIETNAM

Tran Thi Phuong Anh

Graduate University of Science and Technology, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Ha Noi, Vietnam

Received 23 February 2024; accepted 26 March 2024

ABSTRACT

The present work provides a taxonomic key to the genera of Polygonaceae found in Vietnam. It also reports the first occurrence of *Persicaria runcinata* in Lai Chau province, extending its known distribution within the country. Detailed photographic illustrations of the specimens studied accompany the findings. This extended distribution of *P. runcinata* could hold significant conservation implications, emphasizing the importance of further research and conservation efforts in the region.

Keywords: Taxonomy, *Persicaria*, Polygonaceae, extended distribution.

Citation: Tran Thi Phuong Anh, 2024. A key to Vietnamese Polygonaceae genera, with note on extended distribution of *Persicaria runcinata* in Vietnam. *Academia Journal of Biology*, 46(1): 109–114. https://doi.org/10.15625/2615-9023/20181

Corresponding author email: phuonganh@vnmn.vast.vn

INTRODUCTION

The Polygonaceae family includes about 1.110-1.200 species. They are distributed in 43−53 genera. The largest genera are *Eriogonum* (240 species), *Rumex* (200 species), *Coccoloba* (120 species), *Persicaria* (100 species) and *Calligonum* (80 species). This family is widespread throughout the world, but is most diverse in the temperate regions of the Northern Hemisphere, while in the tropics there are fewer species (Takhtajan, 2012; Qaiser, 2001; Anjen et al., 1996; Govaerts, 2021; Rajbhandari, 2021). A total of 11 genera currently assigned to Polygonaceae have been listed for the flora of Vietnam to date, i.e., *Polygonum* L., *Fagopyrum* Mill., *Fallopia* Adans., *Reynoutria* Houtt., *Rumex* L., *Antigonon* Endl., *Persicaria* Mill, *Antenoron* Raf., *Coccoloba* P.Browne, *Muehlenbeckia* Meisn., and *Rheum* L.), with 54 species and 2 varietie (Ho, 2003; Do, 2007; Kim & Donoghue, 2008).

Our findings reveal an expanded distribution of *Persicaria runcinata* (Buch.-Ham. Ex D.Don) H.Gross in Vietnam's Lai Chau province, adjacent to its known presence in the neighbouring province of Lao Cai. Below, illustrations of our fresh collections and a key to the genera of Polygonaceae in Vietnam are provided to facilitate the identification and conservation of this important plant group.

MATERIALS AND METHODS

The specimens of *Persicaria runcinata* were collected during expeditions of the Graduate University of Science and Technology in 2022 in Lai Chau province The herbarium specimens were deposited in HN.

RESULTS AND DISCUSSION

Persicaria Mill., Gard. Dict. Abr. ed. 1754

Synonyms:

Homotypic Synonyms: Peutalis Raf. in Fl. Tellur. 3: 14 (1837)

Heterotypic Synonyms: Amblygonum Rchb. in Handb. Nat. Pfl.-Syst.: 236 (1837) - Antenoron Raf. in Fl. Ludov.: 28 (1817) - *Cephalophilon* (Meisn.) Spach in Hist. Nat. Vég. 10: 521 (1841) - *Chylocalyx* Hassk. in Flora 25(2, Beibl. 1): 20 (1842) - *Echinocaulon* (Meisn.) Spach in Hist. Nat. Vég. 10: 521 (1841) - *Echinocaulos* Hassk. in Flora 25(2, Beibl. 1): 20 (1842) - *Goniaticum* Stokes in Bot. Mat. Med. 2: 338 (1812) - *Heptarina* Raf. in Fl. Tellur. 3: 15 (1837) - *Lagunaea* C.Agardh in Aphor. Bot.: 182 (1823), orth. var. - *Lagunea* Lour. in Fl. Cochinch.: 220 (1790) - *Mitesia* Raf. in Fl. Tellur. 3: 15 (1837) - *Pogalis* Raf. in Fl. Tellur. 3: 15 (1837) - *Sunania* Raf. in Fl. Tellur. 3: 95 (1837) - *Tasoba* Raf. in Fl. Tellur. 3: 94 (1837) - *Tovara* Adans. in Fam. Pl. 2: 276 (1763) - *Tracaulon* Raf. in Fl. Tellur. 3: 13 (1837) - *Truellum* Houtt. in Nat. Hist. 2(8): 427 (1777).

Description: Partly based on Qaiser (2001)

Erect-prostrate, ascending, annual (-perennial) herb. Stem herbaceous, sometimes woody. Leaves narrow, linear-lanceolate or elliptic-ovate, mostly without glands, sometimes gland-dotted. Ochreae tubular, ciliate-partite at the mouth, sometimes eciliate, membranous. Inflorescence is a spike, raceme or sometimes a head. Ochreolae tubular, membranous, ciliate or partite. Perianth segments 4–5, divided usually up to the middle, or above or below, glandular. Glands usually alternate with stamens. Stamens 4-8. Ovary biconvex-trigonous with 2–3 long, filiform, fused or free styles with capitate stigmas. Nuts biconvex-trigonous, glabrous, dark brown-black, shiny.

Persicaria runcinata (Buch.-Ham. ex D.Don) H.Gross (Figs. 1, 2)

Literature: Bot. Jahrb. Syst. 49: 277 (1913).

Synonyms*: Cephalophilon runcinatum* (Buch.-Ham. ex D.Don) Tzvelev in Novosti Sist. Vyssh. Rast. 26: 67 (1989) - *Polygonum runcinatum* Buch.-Ham. ex D.Don in Prodr. Fl. Nepal.: 73 (1825).

TYPE: Nepal [Népaul]. *Wallich, N., #1698,* 1821-01-01. (holotype: G: G00437573 photo!). isotype: K: K001113898 photo!).

Image of holotype available at: https://plants.jstor.org/stable/10.5555/al.ap.specimen.g00437573.

Image of isotype available at: https://plants.jstor.org/stable/10.5555/al.ap.specimen.k001113898**.**

Figure 1. Persicaria runcinata. a) habit; b) flower, top view; c) branches with inflorescences. *T.T.P.Anh. 100.* (HN)

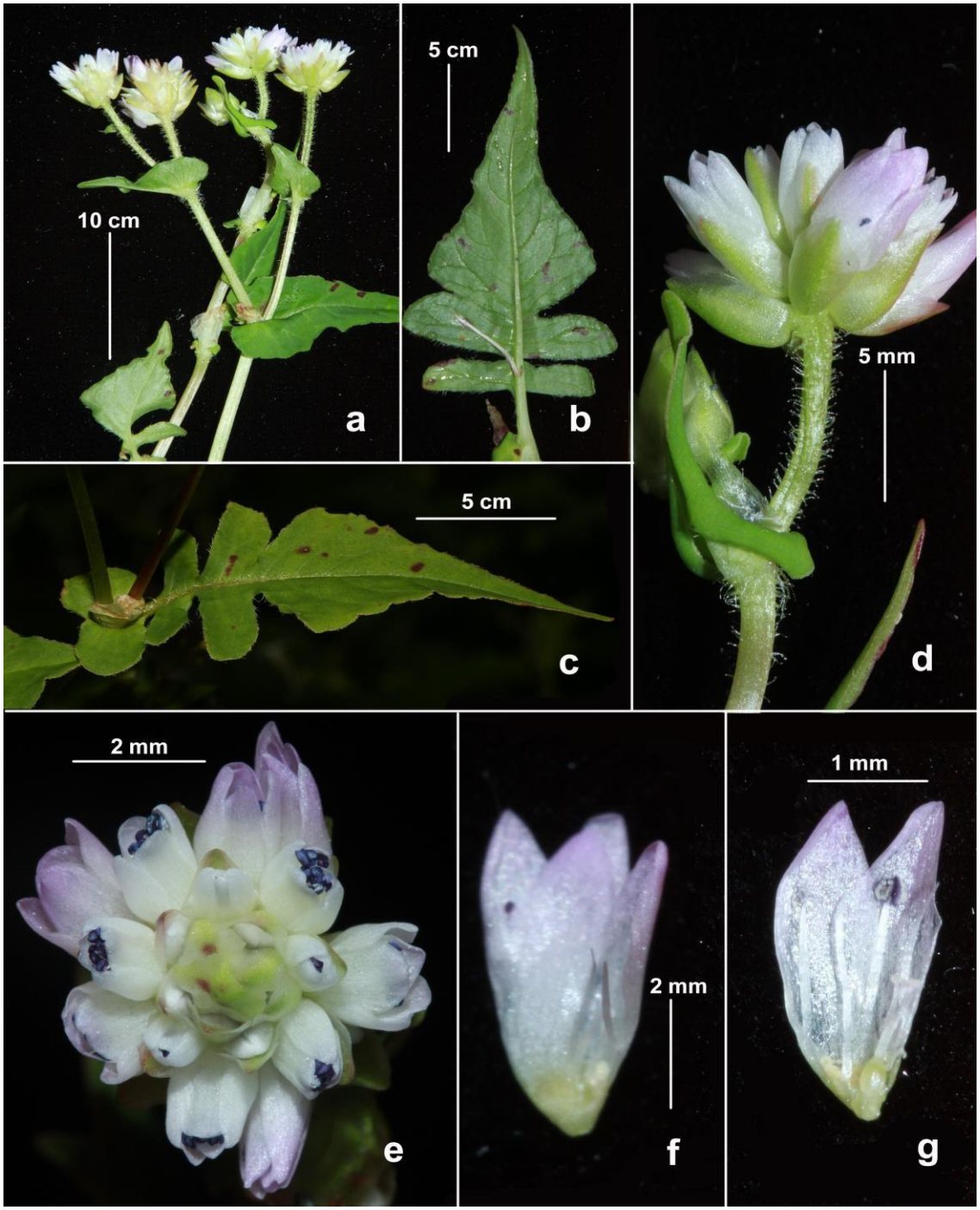

Figure 2. Persicaria runcinata. a) inflorescences; b,c) leaf and bract; d) flower, lateral view; e) flower, oblique-adaxial view; f) perianth; g) opened flower and stamens
T.T.P.Anh. 100. (HN)

Description: Partly based on Anjen et al. (2003).

Herbs perennial. Rhizomes stout. Stems suberect or ascending, 30-60 cm tall,

angulate, pilose or subglabrous, usually nodes retrorsely appressed hispid. Petiole 1–1.5 cm, narrowly winged, base auriculate, upper ones often shortly petiolate or subsessile; leaf blade 4–8 × 2–4 cm, pinnatifid; terminal lobe triangular, large, apex acuminate; lateral lobes 1–3 pairs, smaller, margin shortly ciliate, both surfaces sparsely strigose or glabrous; ocrea tubular, lax, ca. 1 cm, membranous, pubescent, apex truncate, ciliate. Inflorescence terminal, corymbose or paniculate, capitate, dense, 0.5–1.5 cm in diam.; peduncle glandular hairy; bracts narrowly ovate, margin membranous. Pedicels shorter than bracts, slender. Perianth pinkish or white, 5-parted; tepals narrowly ovate, 3–3.5 mm. Stamens usually 8, included; anthers purple. Styles 3, connate to below middle. Achenes included persistent perianth, black-brown, opaque, ovoid, trigonous.

Additional specimens examined: Vietnam. Lai Chau province: Muong Te district, Pa Ve Su commune, Sin Chai C village, 22º33’59.9”N 102º50’44.4”E, elev. 1,700 m, 19 October 2023, *T.T.P.Anh. 100* (HN).

Distribution: *Persicaria runcinata* is known in North-Central and South-Central China (East Himalaya, Tibet, West Himalaya). India, Indonesia (Jawa, Sumatera), W. Malesia, Myanmar, Nepal, Philippines, Thailand. Vietnam (Sa Pa, Lao Cai province, Sin Chai C village, Pa Ve Su commune, Muong Te district, Lai Chau province).

Ecology and phenology: *Persicaria runcinata* inhabits evergreen forests at elevations of 1,700–1,800 m. In Sin Chai C village, Pa Ve Su commune, Muong Te district, Lai Chau province, about a few dozen individuals of the species were observed. Flowering: Sep.–Oct.; fruiting: Aug.–Oct.

KEY TO THE GENERA OF POLYGONACEAE IN THE FLORA OF VIETNAM

Partly based on Do (2007)

1A. Ocrea persistent above the petiole.

2A. Stigma enlarged, pressed on ovary..... 1. COCCOLOBA

2B. Stigma straight.

3A. Stigma capitate.

4A. Herbs, stem erect. Midrib of outside perianths (in ripe fruit) not prominent and decurrent to the receptacle.

5A. Achene not enclosed in persistent perianth.

6A. Achene shorter than persistent perianths (sometimes longer); embryo curved.

7A. Styles persistent, indurate, elongate in fruit, hooked at apex ..... 2. ANTENORON

7B. Styles usually deciduous, neither indurate nor elongate in fruit, never hooked at apex ….. …..... 3. POLYGONUM

6B. Achene longer than persistent perianths; embryo straight..... 4. FAGOPYRUM

5B. Achene enclosed in persistent perianth ..... 5. PERSICARIA

4B. Herb, stem twining. Midrib of outside perianths (in ripe fruit) prominent and decurrent to the receptacle ..... 6. FALLOPIA

3B. Stigma not capitate.

8B. Stigma penicillate ..... RUMEX

8A. Stigma not penicillate.

9A. Stigma fimbriate. Achenes trigonous, not winged ..... 8. REYNOUTRIA

9B. Stigma inflated, recurved. Achenes trigonous, winged ..... 9. RHEUM

1B. Leaf without ocrea, or ocrea disintegrating or reduced.

10A. Stigma flattened, peltate, fimbriate, delicate..... 10. MUEHLENBECKIA

10B. Stigma capitate, small ..... 11. ANTIGONON

Acknowledgements: We thank Dr. Khang S. N. (IEBR) for confirmation of the identification of our specimens. The study was supported by the Graduate University of Science and Technology (GUST), the Vietnam Academy of Science and Technology (VAST).

REFERENCES

Anjen L., Bojian B., Alisa E., Grabovskaya - B., Suk-p. H., John M., Sergei L., Mosyakin, Hideaki O., & Chong -W. P., 2003. Polygonaceae. In. Wu, Z. & Raven,

P.H. (eds.). Flora of China 5, Science Press (Beijing) & Missouri Botanical Garden Press (St. Louis): 1–505.

Govaerts R., Nic Lughadha E., Black N., Turner R., & Paton A., 2021. The World Checklist of Vascular Plants, a continuously updated resource for exploring global plant diversity. https://doi.org/10.1038/s41597-021-00997-6

Kim S. T. & Donoghue M. J., 2008. Molecular phylogeny of *Persicaria* (Persicarieae, Polygonaceae). *Systematic Botany*, *33*(1): 77-86

Rajbhandari K. R., Rai S. K. & Chhetri R., 2021. A Handbook of the Flowering Plants of Nepal 3, Department of Plant Resources, Thapathali, Kathmandu, Nepal: 1–331.

Nguyen Thi Do, 2007. Polygonaceae. In: Nguyen Tien Ban (Ed.) Flora of Vietnam. Vol. 11. Science and Technics Publishing House, Hanoi, pp. 121–141. (in Vietnamese).

Pham Hoang Ho, 2003. An illustrated flora of Vietnam. Vol. 2. Youth Publishing House, Ho Chi Minh City, pp. 951. (in Vietnamese).

Qaiser M., 2001. Polygonaceae. In: Ali, S.I.; Qaiser, M. (eds.) Flora of Pakistan. Vol. 6, Karachi University Press, Karachi, and Missouri Botanical Garden Press, St. Louis., 205: 1–179.

Takhtajan A. L. (ed.) in Takhtajan A. L. (ed.), 2012. Konspekt Flora Kavkaza 3(2), Editio Universitatis Petropolitanae: 1–623.