

## ***Valeriana hardwickii* Wallich and *V. jatamansi* Jones (Valerianaceae) - new additions to the flora of Mizoram, India**

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### **Abstract**

Two species of *Valeriana* Linnaeus viz. *V. hardwickii* Wallich and *V. jatamansi* Jones (Valerianaceae), which were collected by authors from Phawngpui (Blue Mountain) National Park, recorded as new distributional records for the flora of Mizoram.

**Key words:** *Valeriana hardwickii*, *Valeriana jatamansi* New records, Mizoram

### **INTRODUCTION**

The family Valerianaceae comprising of more than 400 species in 11 genera (Reese-Krug *et al.* 2001). The genus *Valeriana* Linnaeus which comprises *c.* 200 species in world (Mabberley 2008), is the largest genus of the family as well as of order Dipsacales (Hidalgo *et al.* 2010). Some of the species of the genus have economic interest such as medicinal (*V. officinalis*, *V. hardwickii*, *V. jatamansi* etc.), edible (*V. edulis*) etc.

Phawngpui National Park is one of the protected area of Mizoram located in South-eastern part of the State, adjacent to Myanmar border, comes under Lawngtlai district of the Mizoram state, lies between 22°36'37" to 22°41'33" N latitudes and 92°00'41" to 93°04'57" E longitudes. During the scientific tour to the Phawngpui (Blue Mountain) National Park the authors collected two species of *Valeriana* Linnaeus. After a critical study of the specimens and comparison with the other specimens deposited at CAL and ASSAM, which were later on identified as *V. hardwickii* Wallich and *V. jatamansi* Jones. The scrutiny of the literatures (Hooker 1881; Gage 1901; Fischer 1938; Kanjilal *et al.* 1939; Shukla *et al.* 1978; Deb & Dutta 1987; Lalramnglimglova 1996; Singh 1999; Singh *et al.* 2000; Grierson & Long 2001; Singh *et al.* 2002; Malsawmsanga & Lalramnghinglova 2011; Kar *et al.* 2013; Lalmuanpui *et al.* 2013) and consultation of herbarium (CAL & ASSAM) revealed that, the two species was not reported earlier from Mizoram and therefore they are presented here new distributional records for the state. The present communication deals with original citation along with detailed descriptions. The specimens are deposited in the ASSAM herbarium for future references.

### **ENUMERATION**

**1.** *Valeriana hardwickii* Wallich, Fl. Ind. 1: 166 – 167. 1820; C.B. Clarke in Hooker f., Fl. Brit. India 3: 213. 1881; Kanjilal *et al.*, Fl. Assam 3: 97. 1939.

Herbs, perennial, 80 – 130 cm tall. Rhizomes short; roots slender. Stolons several. Stems erect, glabrous except at nodes. Basal leaves long petiolate; petioles 6 – 9 cm long; lamina pinnatisect, terminal segments ovate, 3.5 – 7 × 1.5 – 3 cm, serrate, acuminate, subrounded at base, hispidulous to glabrate; lateral segments 4 – 6, reduced towards petiole. Cauline leaves similar to basal leaves, gradually reduced apically. Inflorescence paniculiform, flowers and fruit in dichasial clusters; bracts subulate; bracteoles ovate, *c.* 3 mm. Corolla white or purplish-white, campanulate, *c.* 3 mm, tube and lobes of equal length. Stamens and style slightly exserted. Achenes ovoid, *c.* 3 × 1 mm, hispidulous.

*Flowering & Fruiting:* July – October.

*Habitat & Ecology:* Very rarely grows on moist grassy hill slopes in shady evergreen forest associated with *Ainsliaea latifolia* (D. Don) Schultz-Bipontinus, *Begonia roxburghii* A. DC., *Canscora andrographioides* Griffith ex C.B. Clarke, *Hedyotis scandens* Roxburgh, *Thalictrum foliolosum* DC. etc.

*Distribution:* INDIA: Meghalaya, Mizoram, Sikkim, West Bengal (Darjeeling). WORLD: Bhutan, China, Indonesia, Laos, Myanmar, Nepal, Thailand, Vietnam.

*Specimen examined:* Mizoram, Phawngpui Blue Mountain N.P., Farpak to Peak, 1930 m, 26.10.2011, S. Panday & B.K. Sinha 123558 (ASSAM).

*Uses:* The root is used sometimes for medicine but mainly used as a perfume (Kanjilal *et al.* 1939).

**2. *Valeriana jatamansi*** Jones, *Asiat. Res.* 2: 405 & 416. 1790. *V. wallichii* DC., *Prodr.* 4: 640. 1830; C.B. Clarke in Hooker f., *Fl. Brit. India* 3: 213. 1881; Kanjilal *et al.*, *Fl. Assam* 3: 97. 1939.

Herbs, perennial, 20 – 65 cm tall. Rhizomes short, robust, usually 0.5 – 2 cm across, nodes crowded; roots fibrous. Stems 1 to several, erect, pubescent. Basal leaves persistent, rosulate; petiole 4 – 8 cm long; lamina simple, oblong-ovate, 4 – 14 × 4 – 10 cm, irregularly crenulate, acute, cordate at base, hispidulous or glabrous. Cauline leaves in 2 or 3 pairs, subsessile, 1 – 3 cm, simple or trifoliolate; terminal lobe ovate. Inflorescence corymbiform, villous at nodes; bracts subulate, margins scarious; bracteoles *c.* 2.5 mm long. Corolla white or pinkish-white, funnel-form; flowers polygamous; bisexual flowers 3 – 4 mm, female flowers *c.* 2 mm. Stamens and style exserted. Achenes narrowly ovoid, *c.* 2 × 1.5 mm, villous.

*Flowering & Fruiting:* April – August.

*Habitat & Ecology:* Rare on grassy hill slopes in shady places of evergreen forests and associated with *Crotalaria albida* B. Heyne ex Roth, *Emilia sonchifolia* (Linnaeus) DC., *Fimbristylis complanata* (Retzius) Link, *Ophiorrhiza mungos* Linnaeus, *Rubia cordifolia* Linnaeus, etc.

*Distribution:* INDIA: Meghalaya, Mizoram, Sikkim, West Bengal (Darjeeling). WORLD: Bhutan, China, Thailand, Vietnam.

*Specimen examined:* Mizoram, Phawngpui Blue Mountain N.P., Peak area, 2368 m, 03.04.2011, S. Panday & B.K. Sinha 119602 (ASSAM).

*Uses:* The main activities of the plant are analgesic and anti-inflammatory, antispasmodic, psychotic activity, antimicrobial activity, hypnotic activity, anthelmintic, cytotoxic and antioxidant activity (Devi & Rao 2014).

**Table 1.** Comparison of distinguishing characters of *V. hardwickii* Wallich and *V. jatamansi* Jones

<i>Valeriana hardwickii</i> Wallich	<i>Valeriana jatamansi</i> Jones
Plants upto 130 cm tall	Plants upto 65 cm tall
Leaves compound, pinnatisect	Leaves simple
Inflorescence lax, paniculiform	Inflorescence compact, corymbiform
Corolla white to purplish-white	Corolla white to pinkish-white

*Notes:* Both the two species viz. *Valeriana hardwickii* Wallich and *V. jatamansi* Jones has collected from core area of the Blue Mountain National Park and seen in a single place with only four individuals of each. The plants are growing in an undisturbed dense shady forest and found as rare.

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### LITERATURE CITED

- Deb, D.B. & Dutta, R.M. 1987. A contribution to the flora of Mizoram. *J. Econ. Taxon. Bot.* 10 (1): 21-61.
- Devi, V.S. & Rao, M.G. 2014. *Valeriana wallichii* – a rich aroma root plant – a review. *World Journal of Pharmacy and Pharmaceutical Sciences* 3 (9): 1516–1525.
- Fischer, C.E.C. 1938. The flora of Lushai hills. *Rec. Bot. Surv. India* 12 (2): 75-161.
- Gage, A.T. 1901. A Botanical tour in the South Lushai hills. *Rec. Bot. Surv. India* 1: 331 - 369.
- Grierson, A.J.C. & Long, D.G. 2001. *Flora of Bhutan*. Vol. 2(3). Royal Botanic Garden, Edinburgh. pp. 1366-1367.
- Hidalgo, O.; Mathez, J.; Garcia, S.; Garnatje, T.; Pellicer, J. & Valles, J. 2010. Genome Size Study in the Valerianaceae: First Results and New Hypotheses. *Journal of Botany*. doi:10.1155/2010/797246.
- Hooker, J.D. 1881. *The Flora of British India*. Vol. 3. L. Reeve and Co., Kent, London. p. 213.
- Kanjilal, U.N.; Das, A.; Kanjilal, P.C. & De, R.N. 1939. *Flora of Assam*. Vol. 3 (Caprifoliaceae–Plantaginaceae). Government of Assam, Shillong. pp. 96 - 97.
- Kar, A.; Bora, D.; Borthakur, S.K.; Goswami, N.K. & Saharia, D. 2013. Wild edible plant resources used by the Mizos of Mizoram, India. *Kathmandu Univ. J. Sci. Engng. Tech.* 9(1): 106 - 126.
- Lalmuanpuii, J.; Rosangkima, G. & Lamin, H. 2013. Ethno-medicinal practices among the Mizo ethnic group in Lunglei district, Mizoram. *Sci. Vis.* 13(1): 24–34.

- Lalramnglinglova, J.H. 1996. Ethnobotany of Mizoram-A preliminary survey. *J. Econ. Taxon. Bot. Addl. Ser.* **12**: 439–459.
- Mabberley, D.J. 2008. Mabberley's Plant-Book: A portable dictionary of plants, their classification and uses. Third Edition. Cambridge University Press, Cambridge.
- Malsawmsanga, A. & Lalramnghinglova, H. 2011. Assessment of plant species richness of Phawngpui National Park in Lawngtlai district of Mizoram, India. *Pleione* **5**(2): 292–303.
- Reese-Krug, Heike; Meyer, Elisabeth; Hildenbrand, Marianne & Weberling, Focko. 2001. Palynological investigations in Valerianaceae-some elementary aspects and problems. *Wulfenia* **8**: 61-80.
- Shukla, U.; Baishya, A.K. & Ali, S. 1978. Observations of some economic plants of Mizoram. *Bull. Bot. Surv. Ind.* **20**(1-4): 48–52.
- Singh, K.P. 1999. Mizoram. In V. Mudgal & P. K. Hajra (eds.) *Floristic diversity and conservation strategies in India*. **3**: 1217–1256. Botanical Survey of India, Kolkata.
- Singh, N.P.; Chauhan, A.S. & Mondal, M.S. 2000. *Flora of Manipur*. Vol. **1** (Ranunculaceae–Asteraceae). Director, Botanical Survey of India, Calcutta.
- Singh, N.P.; Singh, K.P. & Singh, D.K. 2002. *Flora of Mizoram*. Vol. **1** (Ranunculaceae–Asteraceae). Director, Botanical Survey of India, Kolkata.