

Bioculturally important rare new plant species of *Heteropanax* Seem (Araliaceae) from Eastern Himalaya, Arunachal Pradesh

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Biocultural importance of a rare newly discovered species of *Heteropanax* Seem. (Araliaceae) viz. *H. dhruvii* R. C. Srivastava, sp. nov. is being reported in this paper. Brief description, phenological data and photos are also provided to facilitate its identification in the field. The biocultural uses of this species by the *Nyshi* tribe are reported first time here. The ways and means of conserving this species is also discussed to sustain this plant species in Arunachal Pradesh.

Keywords: *Heteropanax* sp, New species, Biodiversity, Biocultural uses, Medicinal Plants, Conservation, Arunachal Pradesh
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Arunachal Pradesh, located on the Eastern Himalaya (26°28'-29°30' N latitude and 91°30'-97°30' E longitude) is one of the hot-spots of biodiversity in the world¹. It harbours ca30% of the India's flora (5,000 species) of which, about 4% is endemic^{2,3}. The State has been endowed with five climatic conditions (tropical, sub-tropical, sub-temperate, temperate and alpine) that provide an array of habitats to mixed wet evergreen, dry evergreen and deciduous forests plant species⁴. These forests, which provide natural habitats to huge number of plants and animals (biodiversity), support lives of 26 major tribes and 110 ethnic groups, as majority (95%) of the tribal communities depend on forest resources since the generations⁵. The tribal communities are distributed in and around the mountains covered with rich forest floras. These communities are custodians of plants biodiversity conservation, as they held more degree of ethnobotanical and ecological knowledge⁶. The tribal communities have diverse food habits, cultures and dialects^{4,5,7}. Biodiversity and culture of the State are interwoven in a unique manner that has formed biocultural diversity. The tribal communities who interact with diverse ecosystems since the generation, have accumulated a plethora of traditional knowledge (TK) about plant biodiversity^{4,5}. Many plants species in the State, which are bioculturally and

ethnomedicinally important, are still unidentified taxonomically. About 32 plants species of State are listed as RET species⁸. Thus, there is threat of losing not only the plants biodiversity, but even the related culture and knowledge of tribal community too. In the paper, biocultural uses of a new species from Arunachal Pradesh are being reported. The ways and means of its conservation is also discussed in the paper.

Methodology

The help of local *Nyshi* tribal community leaders were taken to record the traditional uses of the species. Prior informed consent was signed with the *Nyshi* tribal community leader to disclose the uses of the species. The species was identified taxonomically and specimen was preserved in the Botanical Survey of India, Itanagar, Arunachal Pradesh. The objective of the paper is to communicate and make aware the other tribal communities of State about this species, who might be using this plant with other name and in various purposes.

Results and discussion

During the course of studies on Flora of Arunachal Pradesh, a new species of *Heteropanax* Seem was discovered, which was later on found to be associated with the local culture of the people. The trees seem to be rare and hence used as precious material. No one was found cutting these trees or the branches. The

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local traditional uses of this tree species in Arunachal Pradesh are being recorded in the paper for the first time.

Heteropanax dhruvii R.C.Srivastava *sp. nov.*, V.P. A.P. 52:355-357.2009

Trees, unarmed, up to 3m high; trunk profusely branched dichotomously at ca 1.5m from ground (Fig.1). Leaves glabrous, ca 120cm across, pinnately compound; stipules not prominent; leaves with pairs of opposite leaflets at the nodes of the rachis; leaflets, elliptic, 8-10x3-4.5cm shortly acuminate at apices, slightly narrowed at base, glabrous, entire; petiolules 3-5mm long. Panicles often up to 42cm long, branches up to 17cm long; umbels dense, subcapitate in flower; pedicels elongating in fruits. Fruits much laterally compressed, 2-seeded, 5-6mm, ca 3mm thick, ultimately glabrous, often glaucous.

Affinis Heteropanax fragrans (Roxb.) Seem., *sed differt in habitus, amplitudine de inflorescentia, forma at amplitudine de folia, ramificans de terminalis, ramus inflorescentia, absentia vel praesentia de masculine flores; flores unisexualis; female flores numerosus sursum superibus; male flores infra.*

Allied to *Heteropanax fragrans* (Roxb.) Seem, but differs in habit, canopy, length and width of the inflorescence, size of the leaves; shape of the leaflets and presence of peduncled umbels of male flowers.

Holotype: INDIA: Arunachal Pradesh; Itanagar dt, Senkie View locality, R.C.Srivastava 19939A & B (ARUN)

Fl. & Fr. : Oct. – Dec.

Distrib. : INDIA (Arunachal Pradesh)

Notes : Only 2 mature trees have been recorded so far. In spite of profuse fruiting, no sapling could be traced out below/near the tree (Fig. 2).

Etymology : The specific epithet is in honour of my son (Dhruv) who is a source of inspiration for me.

Traditional uses

Wood of these trees is used in tanning the skin of *Mithun* (*Bos frontalis*- State Animal of Arunachal Pradesh, which is endemic to this state) and other animals by the community hunters. Fruits are said to be used as shampoo by the *Nyshi* community. Though, knowledge about using fruits of *H. dhruvii* is available in the public domain of *Nyshi* tribe, however, it is mostly used by the elders of community. Younger members of tribe are not aware of biocultural uses of *H. dhruvii* species. It indicates that there is a gap about biocultural knowledge on this species among older and younger members of *Nyshi* tribe. We can infer that there is an erosion of biocultural knowledge on this species among younger member of *Nyshi* tribe.

Conservation of bioculturally important plants biodiversity

From foregoing study, it has been concluded that *Heteropanax dhruvii* R.C. Srivastava *sp. Nov.* like



Fig.1–*Heteropanax dhruvii* R.C. Srivastava *sp. nova*

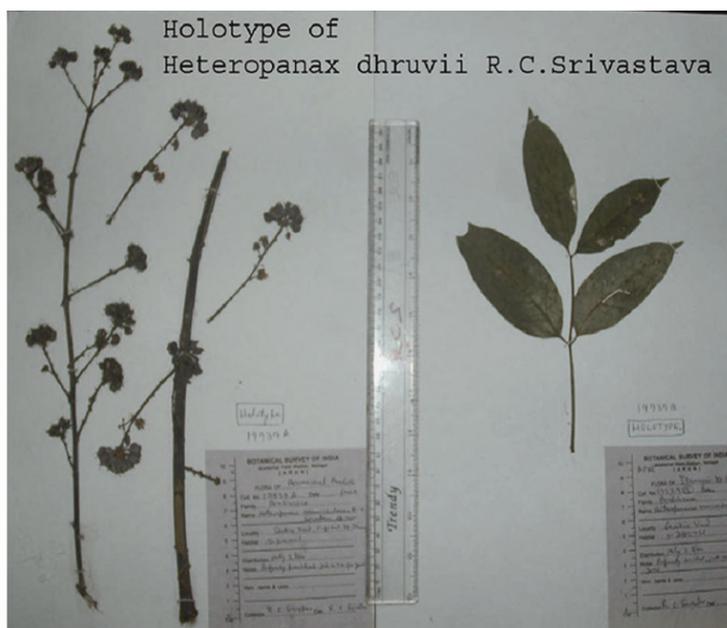


Fig. 2–Holotype of *Heteropanax dhruvii* R. C. Srivastava *sp. nova*

many species are there in Arunachal Pradesh without being identified and known to the public and scientific world. Apart from the known species, the new plant species are also an integral part of the biocultural knowledge systems of 110 ethnic communities under 26 tribes of state. The rich plant biodiversity of State is the backbone to foods, ethnomedicine, handicrafts, socio-cultural and other needs of diverse tribes. There is indication of erosion in biocultural knowledge among younger people. Apart from educational activities and awareness campaign to younger people, there is an urgent need of strong willingness of conserving biodiversity is the demand of day^{4,5}.

It is therefore, required to have the location specific conservation strategies in the State. To do so, the community participation should be the first mandate of any conservation project. The conservation of plants biodiversity can be activated and made possible through the various approaches like: establishing village traditional knowledge bank (VTKB), community knowledge garden (CKG), value addition to the commercially viable plant products and protection of IPR over biocultural knowledge systems, implementation of Prior Informed Consent (PIC) at the grassroots level, developing community consultation protocol and coordinated efforts from R&D with the community members and State Forest Department^{9,10}. In all these approaches, the customary institutions and village *panchayats* could take the lead role. Though, it is somewhat difficult job to these institutions since members of such institutions are almost unaware about the various issues and approaches of conserving plant based biocultural resources¹¹. In order to enhance conservation of plant biodiversity, members and chief of these institutions must be trained and equipped well.

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