

## ALSTONIA VENENATA R. BR. (APOCYNACEAE): A NOTE ON DISTRIBUTION PATTERN OF AN ENDEMIC SPECIES

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*Alstonia venenata*, a shrubby Apocynaceae is endemic to eastern and southern India. It is predominant in Kerala (Silent valley, Agasthyamalai hills and Anamalai hills ranges), Tamil Nadu (dense forests of Tirunelveli, Nilgiris and Coimbatore hill ranges-Gamble, 1923) and is sparsely distributed in Andhra Pradesh, Karnataka, Orissa and Chhattisgarh. In Andhra Pradesh, it is reported from the hill slopes of Srikakulam District (Rao & Sreeramulu, 1986). Ved & al. (2002) have later mentioned its occurrence from other locations of Andhra Pradesh namely Rayalaseema and Andhra region and indicated its conspicuous absence in Telangana area. Recently, Pullaiah (per. comm.) has confirmed its occurrence in Visakhapatnam and Srikakulam districts. Verma & Lal (1984) reported its rare occurrence in Raipur of Chhattisgarh while Haines (1924) recorded it in the ravines of the Angul hills of Orissa. In Karnataka state, Cooke (1904) recorded it from Devimane Ghat in Uttara Kannada. Later, Yoganarasimhan & al. (1977) have collected this species from Kalathgiri hill ranges of Chikmagalur District. Although the species was reported as present in Shimoga district in the Flora of Karnataka (Sharma & al. 1984), further studies however did not confirm this (per. comm., M.B.Shivanna). *A. venenata* is now seen growing luxuriantly in Bangalore in the campus of the Indian Institute of Science. It is a remnant of the wild flora that existed here and is a new record for the flora of the Bangalore district. This species is also reported in Myanmar (Anonymous, 2003) and Africa, probably as an introduction (<http://www.frlht.org>).

Considering its wider distribution in both Kerala and Tamil Nadu on either side of the southern Western Ghats, *A. venenata* may be classified as a paleoendemic species and can be construed as having its origin at the southernmost part of Western Ghats. It may be noted here that Kerala state accounts for 22.6% of the 5,725 Indian endemic plants (<http://www.keralaforest.org/index.php>, 2009). *A. venenata* must have then extended to Eastern Ghats, Andhra Pradesh, Orissa and Chhattisgarh on one hand and into parts of Karnataka on other, that indicates its ecological amplitude. The present general decline in its population, area of occupancy, rarity (in Andhra Pradesh, Chhattisgarh and Orissa) and disjunct distribution (in Karnataka) could be due to habitat loss (Suresh Kannery, 2002) and over-exploitation on account of its medicinal importance (Karuppusamy & Kumuthakavalli, 1998).



Fig. 1. *Alstonia venenata* R.Br. A twig showing the leaves and inflorescence.

In line with the efforts of several working groups on the conservation of threatened species and the present day emphasis on awareness-building of these species and further the need for the identification of areas which are under serious threat of habitat modification, *A. venenata* warrants immediate steps for conservation. Ex situ conservation through conventional and modern biotechnological methods is also recommended for species as this (Agarwal & al. 2006). *A. venenata* is already been multiplied in vitro through the efforts of M.S Swaminathan Foundation, Chennai (Anonymous, 1993-94). It is one of the few species whose germplasm is conserved at Tropical Botanical Garden Research Institute, Trivandrum (Pushpangadan & Thomas, 1999).

The conservationists further emphasize,

□ Validation of threatened species through a network of organisations, State Forest Departments and Universities employing quantification methods,

□ Development of packages (both in situ and ex situ) for rehabilitation of threatened species,

□ Establishment of species watch group on threatened organisms (Monika Koul & Bhatnagar, 2009).

To summarise, *A. venenata* is a paleoendemic species with a unique disjunct distribution pattern. It appears that the species had its origin in the southern tip of Western Ghats and then spread into drier regions of Eastern Ghats and wet evergreen regions of Western Ghats, though discontinuously, indicating its wide ecological amplitude. Further, the altitudinal distribution ranging from 660 m to 1900 m and confinement to hilly tracts is an indication of its altitudinal adaptability. This is incidentally a new record to Bangalore flora. It requires conservation and sustainable use.

*Fl. & Fr.*: December – June.

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#### REFERENCES

- AGARWAL, R.C., P. BRAHMI, S. SAXENA, G.J. RANDHAWA, K. GUPTA, D.S. MISRA AND J.L. KARIHALOO (Compilers). 2006. Report on the establishment of National information sharing mechanism on the implementation of the Global plan of Action for the Conservation and Sustainable utilization of Plant Genetic Resources for food and agriculture in India. 238. NBPGR, New Delhi.
- ANONYMOUS. 1993-1994. Annual report of M.S. Swaminathan Research Foundation, Centre for Research on Sustainable Agriculture and Rural development, Madras. 600. 133. 600.
- ANONYMOUS. 2003. Checklist of the trees, shrubs, herbs and Climbers of Myanmar. Contributions from United States National Herbarium 45: 1 - 500.
- COOKE, T. 1904. Apocynaceae In: The Flora of the Presidency of Bombay 2: 184 - 207, Calcutta.
- GAMBLE, J.S. 1923. Apocynaceae In: Flora of the Presidency of Madras 2: 562 - 577, Calcutta.
- HAINES, H.H. 1924. Apocynaceae In: Botany of Bihar and Orissa (reprinted 1961). Botanical Survey of India. Calcutta. 557 - 573.
- KARUPPUSAMY, S. AND R. KUMUTHAKAVALLI. 1998. Some folk lore medicinal claims on rare plants of Sirunamalai hills, Dindigul District, Tamil Nadu, India. BMEBR 9: 145 - 149.
- Koul, M. AND A.K. BHATNAGAR. 2009. Species watch group- a key to biodiversity conservation. Environ News-ISEB. 15 (2).
- PUSHPANGADAN, P. AND J. THOMAS. 1999. Medicinal Plant Conservation In: Proceedings of the Fifth International Botanic Garden Conservation Congress. 14 - 18 Sept. 1998, Kirstenbosch, South Africa.
- RAO, R.S. AND S.M. SREERAMULU. 1986. Apocynaceae. In: Flora of Srikakulam District, Andhra Pradesh. India. Meerut. 294 - 302.
- SHARMA, B.D., N.P. SINGH, R. SUNDARARAGHAVAN AND U.R. DESHPANDE. 1984. Apocynaceae. In: Flora of Karnataka. Botanical Survey of India, Calcutta. 160 - 167.
- SURESH KANNERY, S. 2002. Ponmudi-ibex hills: vanishing habitat of an isolated population of Nilgiri Tahr. Caprinae (News letter of the IUCN/SSC Caprinae specialist group).
- VED, D.K., P.S. UDAYAN, K. RAVIKUMAR, N. BEGUM AND R. KARTHIKEYAN. 2002. Medicinal Plant species of Andhra Pradesh community forestry project area including tabulation of Red Listed Species (with presence in the three agro-climatic zones) FRLHT. Bangalore. 1 - 87.
- VERMA, D.M. AND J. LAL. 1984. Apocynaceae. In: Verma, D.M. & al. (ed.), Flora of Raipur, Durg and Rajnandgaon. Botanical Survey of India, Calcutta. 216 - 220.
- YOGANARASIMHAN, S.N., K. SUBRAMANYAM AND B.A. RAZI. 1977. Apocynaceae. In: Studies on the flora of Chickmagalur District - Enumeration of Taxa. *Vignana Bharathi* 3: 53.