A CHECKLIST OF THE FAMILY CAPRIFOLIACEAE JUSS. IN INDIA

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ABSTRACT

While reviewing the Magnoliopsid family Caprifoliaceae Juss. in India the present study could document as many as 53 species of six genera, viz. \textit{Abelia} Roxb., \textit{Leycesteria} Wall., \textit{Lonicera} L., \textit{Sambucus} L. \textit{Triosteum} L. and \textit{Viburnum} L. of Caprifoliaceae from the Himalaya and the South Indian Hills. In the checklist, thus prepared, \textit{Lonicera} appears to be the most dominant one with 25 species, the next to follow being \textit{Viburnum} with 17 species. In case of \textit{Leycesteria} and \textit{Sambucus} as many as 5 and 4 species could be documented respectively. Both \textit{Abelia} and \textit{Triosteum} are represented in India by a single species each.

KEYWORDS: Caprifoliaceae, India, Genera, Species, Himalaya, South Indian Hills

The family Caprifoliaceae was named by Antoine Laurent de Jussieu in 1789 in his book \textit{Genera Plantarum} based on \textit{Caprifolium}, the generic name cited as early as 1754 by Phillip Miller in the fourth edition of the book entitled \textit{The Gardeners Dictionary... Abridged}. The Latin name \textit{Caprifolium} means Goats’ Leaf. The name appears to be meaningful since herbage of plants of this family is a favourite food of goats and the stem twines like the goat’s horn. Although the generic name \textit{Caprifolium} Miller is presently treated as a synonym, the family name Caprifoliaceae Juss. stands conserved with appropriate annotations.

The family Caprifoliaceae Juss. has been assigned a position within the Dipsacales Juss. ex Bercht. & J.Presl. which is an order belonging to the class Magnoliopsida (dicotyledons) of the division Magnoliophyta (angiosperms). Cronquist (1988) treated this order as a member of the subclass Asteridae Takhtajan of the class Magnoliopsida. According to him Caprifoliaceae includes about 400 species under it. The family has been shown to include 12 genera and 260 species by Takhtajan (2009) and 12 genera and 275-300 species by Watson and Dalwitz (1992 onwards). The Angiosperm Phylogeny Group Classification (APGIII, 2009) puts Caprifoliaceae in Dipsacales under the subgroup Campanulid of the clade Asterid of the Core

Eudicot, the largest clade under Eudicots which is one of the major clades of Angiosperms having tricolpate or tricolpate-derived pollen types. The Angiosperm Phylogeny Group Classification in its latest version (APG IV, 2016) has kept Caprifoliaceae under the order Dipsacales of the clade Campanulids of Asterid belonging to Superasterid of the major clade Eudicots.

The plants belonging to the Caprifoliaceae are mostly shrubs and vines, rarely herbs and have: leaves opposite, simple, entire or occasionally lobed, or pinnately compound being imparipinnate or incompletely bipinnate; sometimes stipulate; flowers actinomorphic or zygomorphic, in cymes; calyx 5-4, tube fused with ovary and terminating in small imbricated or open teeth; corolla 5-4, rising above the ovary to have spreading imbricated lobes, sometimes bilabiate; stamens equaling the number of corolla lobes and alternating with them, epipetalous; gynoecium compound with 2-5-8 carpels; ovules 1-many per locule, pendulous, in axile placentation; style simple with capitate stigma; fruits fleshy berry or drupe or achene or dehiscent or indehiscent capsules; seeds with fleshy endosperm. Many members of this family possess, floral or extra-floral nectaries, attract pollinators. Moreover, the flowers often emit a sweet heavy odour.

The family is somewhat cosmopolitan in distribution with a preference to temperate regions. It has its centres of diversity in the eastern North America and eastern Asia and appears to have remained absent in tropical and southern Africa.

After the work of C.B. Clarke (1880) on Caprifoliaceae in the Flora of British India, there has been scattered information about the family communicated through the regional floras and publications in journals. To fulfill the need for an updated and comprehensive revision of the taxon in India the present work was taken up in conformity with earlier work (Acharya \textit{et al}., 2010; Mukherjee and Acharya, 2011; Acharya and Mukherjee, 2014a, 2014b 2014c; 2015).

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MATERIALS AND METHODS

The work was initiated in 2010 with a review of literature having relevance to various taxonomic aspects of Caprifoliaceae collaterally with documentation of nearly 1000 specimens preserved in different Herbaria in India (Central National Herbarium (CAL), Lloyd Botanic Garden, Darjeeling (LBG), Sikkim Circle of Botanical Survey of India, Gangtok (BHSC), Burdwan University (BURD), North Bengal University, Eastern Regional Centre, Botanical Survey of India, Shillong (ERC, BSI), Arunachal Pradesh Field Station, Botanical Survey of India, Itanagar (ARUN)], Madras Herbarium (MH) of the Southern Regional Centre, Coimbatore) and abroad [Royal Botanic Gardens, Kew (K), Herbarium Haussknecht (JE), Friedrich-Schiller-Universität, Jena and Botanische Staatssammlung München (M)] as also the scanned and web images of specimens, mainly the types, availed from such sources as Herbarium of the Arnold Arboretum (A), Natural History Museum (BM), Royal Botanic Garden Herbarium (E), Muséum National d’Histoire Naturelle (P), The William and Lynda Steere Herbarium of the New York Botanical Garden, NYBG, (NY), Academy of Natural Sciences of Drexel University Museum in Philadelphia, Pennsylvania (PH) and others. Floras and other publications covering the taxon in India were consulted to confirm identification and to cite them along with protologue of respective species. Nomenclature of each species was checked with that given in the latest publications. Websites of the International Plant Names Index (IPNI) [http://www.ipni.org/], The Plant List (http://www.theplantlist.org/) and Tropicos (http://www.tropicos.org/) were consulted for updating species names.

RESULTS

The present work documents 53 species of 6 genera viz. Abelia Roxb., Leycesteria Wall., Lonicera L., Sambucus L., Triosteum L. and Viburnum L. of the Caprifoliaceae from India covering the Himalaya extending from the North West to the North East and also in South Indian Hills. The family could not be documented from any other part of India. A very comprehensive key to the identification of the genera has been prepared to facilitate identification. The concerned species have been enumerated alphabetically under each genus along with their updated nomenclature, citations, synonyms, basionyms, etc.

Key to the Genera

1. Plants herbaceous, opposite pairs of leaves connate at the base ……5.Triosteum
2. Leaves imparipinnate or incompletely bipinnate……………..……..………….4.Sambucus
3. Stem and branches mostly scandent; the flowers in each ultimate axillary pair basally fused…………………………………………………………...………………3. Lonicera
4. Flowers with extra-floral nectaries; stem and branches fistular…………………………………………………………...……………….2.Leycesteria
5. Flowers in cymose clusters of 3 or more flowers, central flower usually sessile, calyx plumose, carpels without nectaries ……………………………………….1. Abelia
6. Viburnum

ABELIA R.Br.

LEYCESTERIA Wall.


LONICERA L.


Lonicera glabrata

Lonicera hispida


Lonicera hypoleuca

Lonicera japonica


**SAMBUCUS L.**

**TRIOSTEUM L.**


**VIBURNUM L.**


2. **Viburnum colebrookianum** Wallach ex DC., Prodr. 4: 325.1830; Clarke in Fl. Brit. India 3: 5.1880.


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DISCUSSION

The taxonomic domain of Caprifoliaceae has been frequently revised especially in the context of Sambucus and Viburnum. These genera which are conventionally placed in the family Caprifoliaceae are presently placed in either Adoxaceae or in families of their own. The present work adopts the circumscription considered by Cronquist (1988) to include both Sambucus and Viburnum as members of the family Caprifoliaceae. Moreover the present endeavour, basically a review work, is in conformity with the circumscription of the Caprifoliaceae followed by C.B. Clarke (1882) in J.D. Hooker’s Flora of British India since the author attempts to fulfill the objective of updating the taxon as per the territorial jurisdiction of the present day India. However the genus Adoxa which was included within Caprifoliaceae by C.B. Clarke is contemporarily placed in its own family Adoxaceae treating it as a very close relative of Caprifoliaceae. In view of this, all the genera except Adoxa, viz. Abelia, Leycesteria, Lonicera, Sambucus, Triosteum and Viburnum have been considered as members of Caprifoliaceae in the present work. The species documented here are mostly distributed in the Himalayas extending from Kashmir in the Northwest to Arunachal Pradesh in the Northeast and some in the South Indian Hills. No other region of India shows the existence of Caprifoliaceae. Both Abelia and Triosteum are represented in India by a solitary species each. Lonicera appears to be the most dominant one with 25 species, the next to follow being Viburnum with 17 species. Leycesteria is represented in India by 5 species while Sambucus has four species to its credit. The information thus gathered from Herbarium studies paved the guidelines for scheduling subsequent field survey in the regions ranging from temperate to alpine Himalaya and in temperate regions of South Indian Hills.

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REFERENCES


