



The genus *Viburnum* L. in Sikkim Himalaya

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Abstract

Viburnum L. (Family- Caprifoliaceae) with 11 species growing in Sikkim comprises about 65% representative of the Indian members of the genus. The present communication highlights the extraordinary diversity of the genus within this tiny Himalayan state. Details of the protologue, synonyms, phenological data and both global and Indian distributional data are presented here. An artificial key to the species of *Viburnum* found in Sikkim is also provided for the ease of identification.

Keywords: Biodiversity, Phenology, Sikkim Himalaya, *Viburnum*

Introduction

Sikkim is the tiniest state of northeastern region of India with the geographical area of 7096 sq. km. The state is surrounded by Nepal in the West, Bhutan in the East, Tibet in the North and North-East, the Darjeeling district of West Bengal in the South. Covering only 0.2% of the total geographical areas of the country, this little Himalayan state shelters about 32% of the flowering plants of India (Maity and Maiti, 2024). Due to varied climatic conditions, rich floral diversity and existence of many endemic and rare taxa, the state, rightly called as the “Botanist’s Paradise” and has been identified as part of one of the Global Hotspots.

The genus *Viburnum* L. (Caprifoliaceae) includes 180 species of small trees and shrubs which are widely distributed in temperate and subtropical regions of Europe, North Africa, Asia, and the Americas (Mabberley, 2017). Species of *Viburnum* are easily differentiated from others with their small trees and shrub-like habit; opposite (rarely whorled) simple, petiolate leaves; paniculate or umbellate inflorescences, sometimes having marginal sterile flowers; and single stoned drupes, red to purple-black in colour when ripen (Donoghue *et al.*, 2003). Some species of *Viburnum* are often cultivated as ornamentals for their showy, fragrant flowers and as source of medicine also (Mabberley, 2017; Choi & Oh, 2019).

Though presently *Viburnum* is recognized as a member of the family Adoxaceae (APG, 2016), however, in this article the genus is treated under the family Caprifoliaceae as conventionally classified by Bentham and Hooker (1862-1883) for easy approach.

In India, *Viburnum* is represented by 17 species (Gangopadhyay *et al.*, 2020). The number of species under the genus residing in Sikkim is variously depicted by different workers so far. 8 species (plus one infraspecies) are reported by Singh *et al.*, 2019 and Gogoi *et al.*, 2021. Recently Ghosh (2024) provided an account of 10 species of this ‘honeysuckles’. Rigorous field survey, herbarium study and extensive literature search have resulted in the count of about 11 species of *Viburnum* in Sikkim. The present account deals with the diversity of the genus in Sikkim, along with their phenological information, detailed distributional records (both Indian and global) and habitat data. Moreover, all taxa presented herewith are supported by at least one

representative specimen under specimen examined section. Additionally, the key to all the taxa found in Sikkim Himalaya is also provided to aid easy recognition and correct identity. Correct accepted names are also provided along with synonyms and basionym, if any, for each species. Currently, three species enumerated under Sikkim state are solely based on literature survey and without any representative specimen. To validate their occurrence in Sikkim further investigation is needed.

Materials and Methods

This interpretation is based on extensive field surveys for last two decades as well as herbarium consultation. Majority of the specimens are directly examined both in the fields and in different repositories like CAL, BSHC, CUH, SSFH, etc. In many instances, old depositions are also included from worldwide herbaria like K, E, PE, G, GH, BM, etc. All relevant literatures are scrutinized and important informations are assimilated. Photographs of few flowers and fruits are provided (Fig. 1).

Results

Enumeration of *Viburnum* L. in Sikkim (arranged in alphabetical order)

1. *Viburnum colebrookeanum* Wall. ex DC., Prodr. 4: 325. 1830.

Viburnum lutescens Hook.f. & Thomson

Fl. & Fr.: January-April

Distribution: INDIA: Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland, Sikkim, West Bengal; BANGLADESH; BHUTAN; MAYANMAR; NEPAL.

Habitat: This species grows in subtropical and mixed temperate forests in between 610-2134 m amsl.

Specimen examined: Forest of Sikkim, *White* 205 (CAL).

2. *Viburnum coriaceum* Blume, Bijdr. Fl. Ned. Ind. 656. 1826.

Fl. & Fr.: July-November

Distribution: INDIA: Assam, Karnataka, Kerala, Manipur, Nagaland, Sikkim, Tamil Nadu.

Habitat: This species grows in subtropical and mixed temperate forests in between 1200-2500 m amsl.

Specimen examined: Namchi to Damthong Old Road, 5 km area, South Sikkim, *G. P. Sinha* 15242 (BSHC).

3. *Viburnum corylifolium* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 2: 174. 1858.

Viburnum barbigerum H.Lév.; *V. dunnianum* H.Lév.

Fl. & Fr.: March-September

Distribution: INDIA: Arunachal Pradesh, Assam, Himachal Pradesh, Meghalaya, Sikkim, Uttarakhand; CHINA; TIBET.

Habitat: This species grows in mixed temperate forests in between 2000-3100 m amsl.

Specimen examined: Specimen from Sikkim not found.

4. *Viburnum cotinifolium* D.Don, Prodr. Fl. Nepal. 141. 1825.

Fl. & Fr.: April-June

Distribution: INDIA: Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttarakhand, West Bengal; AFGHANISTAN; BHUTAN; CHINA; NEPAL.

Habitat: This species grows in mixed temperate forests in between 2300-2600 m amsl.

Specimen examined: Lachen to Thangu (N Sikkim), *Anonymous* 29123 (BHSC).

5. *Viburnum cylindricum* Buch.-Ham. ex D.Don, Prodr. Fl. Nepal. 142. 1825.

Viburnum capitellatum Wight & Arn.; *V. crassifolium* Rehder

Fl. & Fr.: June-December

Distribution: INDIA: Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttarakhand, West Bengal; BHUTAN; CHINA; INDONESIA; MYANMAR; NEPAL; PAKISTAN; THAILAND; VIETNAM.

Habitat: This species grows in subtropical and mixed temperate forests in between 500-3300 m amsl.

Specimen examined: Narkhola to Karchi School, 2100-1850m, *Sinha* 16669 (BHSC).

6. *Viburnum erubescens* Wall. ex DC., Prodr. 4: 329. 1830.

Solenotinus erubescens (Wall. ex DC.) Oerst.; *Viburnum botryoideum* H.Lév.; *V. burmanicum* (Rehder) C.Y.Wu; *V. burmanicum* var. *motoense* P.S.Hsu; *V. erubescens* var. *parvum* P.S.Hsu & S.C.Hsu; *V. prattii* Graebn.; *V. pubigerum* Wight & Arn.; *V. tibeticum* C.Y.Wu & Y.F.Huang; *V. wightianum* Wall.

Fl. & Fr.: March-December

Distribution: INDIA: Arunachal Pradesh, Kerala, Manipur, Meghalaya, Sikkim, Tamil Nadu, Uttarakhand, West Bengal; BHUTAN; CHINA; MYANMAR; NEPAL.

Habitat: This species mostly grows in temperate to subalpine forests in between 1400-4000 m amsl.

Specimen examined: Lachen, 2900 m, *Maity & Maiti* 21329.

7. *Viburnum foetidum* Wall., Pl. Asiat. Rar. 1: 49. 1830.

Fl. & Fr.: June

Distribution: INDIA: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim; BANGLADESH; BHUTAN; CHINA; LAOS; MYANMAR; THAILAND [m amsl].

Habitat: This species grows in subtropical to temperate forests in between 600-3100 m amsl.

Specimen examined: Sikkim, July 1936, *N. L. Bor* 19867 (BHSC).

8. *Viburnum grandiflorum* Wall. ex DC., Prodr. 4: 329. 1830.

Solenotinus foetens (Decne.) Oerst.; *Viburnum foetens* Decne.; *V. grandiflorum* f. *foetens* (Decne.) N.P.Taylor & Zappi

Fl. & Fr.: March-September

Distribution: INDIA: Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttarakhand; BHUTAN; CHINA; NEPAL; PAKISTAN [2800-4300 m amsl].

Habitat: This species grows in temperate to subalpine forests in between 2800-4300 m amsl.

Specimen examined: Specimen from Sikkim not found.

9. *Viburnum mullaha* Buch.-Ham. ex D.Don, Prodr. Fl. Nepal. 141. 1825.

Viburnum cuttingianum Merr.; *V. involucreatum* Wall. ex DC.; *V. mullaha* var. *involucreatum* (Wall. ex DC.) H.O.Saxena; *V. stellulatum* Wall. ex DC.; *V. stellulatum* var. *glabrescens* C.B.Clarke; *V. stellulatum* var. *involucreatum* (Wall. ex DC.) C.B.Clarke; *V. thaiyongense* W.W.Sm.

Fl. & Fr.: July-November

Distribution: INDIA: Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Meghalaya, Mizoram, Sikkim, Uttarakhand, West Bengal; BHUTAN; CHINA; NEPAL.

Habitat: This species grows in subtropical to subalpine forests in between 1500-4000 m amsl.

Specimen examined: Bakhim to Dzungri, 3300 m, *Maity* 21912.

10. *Viburnum nervosum* D.Don, Prodr. Fl. Nepal. 141. 1825.

Solenotinus nervosus Oerst.; *Viburnum cordifolium* Wall. ex DC.; *V. nervosum* var. *hypsophilum* (Hand.-Mazz.) H.W.Li

Fl. & Fr.: March-October

Distribution: INDIA: Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttarakhand, West Bengal; BHUTAN; CHINA; MYANMAR; NEPAL; VIETNAM.

Habitat: This species grows in temperate to subalpine forests in between 2100-4500 m amsl.

Specimen examined: Bakhim 2700 m, *Maity* 21574 (BHSC).

11. *Viburnum punctatum* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 142. 1825.

Fl. & Fr.: March-October

Distribution: INDIA: Sikkim, Uttarakhand; BHUTAN; CAMBODIA; CHINA; INDONESIA; MYANMAR; NEPAL; THAILAND; VIETNAM.

Habitat: This species grows in subtropical to temperate forests in between 300-1900 m amsl.

Specimen examined: Specimen from Sikkim not found.

Key to the species of *Viburnum* of Sikkim:

- | | |
|--|--------------------------|
| 1. Flowers in paniculate cymes | 2 |
| - Flowers in corymbose or umbellate cymes | 3 |
| 2. Plants hysteranthous; stigma discoid, 2-lobed | V. grandiflorum |
| - Plants not as above; stigma capitate | V. erubescens |
| 3. Corolla tubular or campanulate | 4 |
| - Corolla rotate | 6 |
| 4. Deciduous; leaves stellate pubescent | V. cotinifolium |
| - Evergreen; leaves glabrous or with simple hairs | 5 |
| 5. Flowers bracteate; fruits black | V. coriaceum |
| - Flowers ebracteate; fruits reddish, brown at maturity | V. cylindricum |
| 6. Evergreen plants with glabrous or simple haired leaves | V. punctatum |
| - Deciduous plants with stellate pubescent leaves | 7 |
| 7. Flowers in umbellate cymes | 8 |
| - Flowers in corymbose cymes | 9 |
| 8. Petioles green; lateral veins of leaves 6-8-jugate, margin serrate | V. corylifolium |
| - Petioles reddish purple; lateral veins of leaves 2-4-jugate, margin subentire or large-dentate | V. foetidum |
| 9. Leaf base cordate; corymbs sessile | V. nervosum |
| - Leaf base rounded to cuneate; corymbs usually stalked | 10 |
| 10. Leaves alternate, oblong-elliptic, short acuminate; drupes ellipsoid; seeds hardly grooved | V. colebrookeanum |
| - Leaves opposite, ovate, long acuminate; drupes globose; | |

seeds grooved

V. mullaha

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Legend

Fig. 1: Flowers and fruits of *Viburnum*. **A.** flowers of *V. grandiflorum* with fruits in inset; **B.** flowers of *V. mullaha*; **C.** fruits of *V. mullaha*; **D.** flowers of *V. cotinifolium*

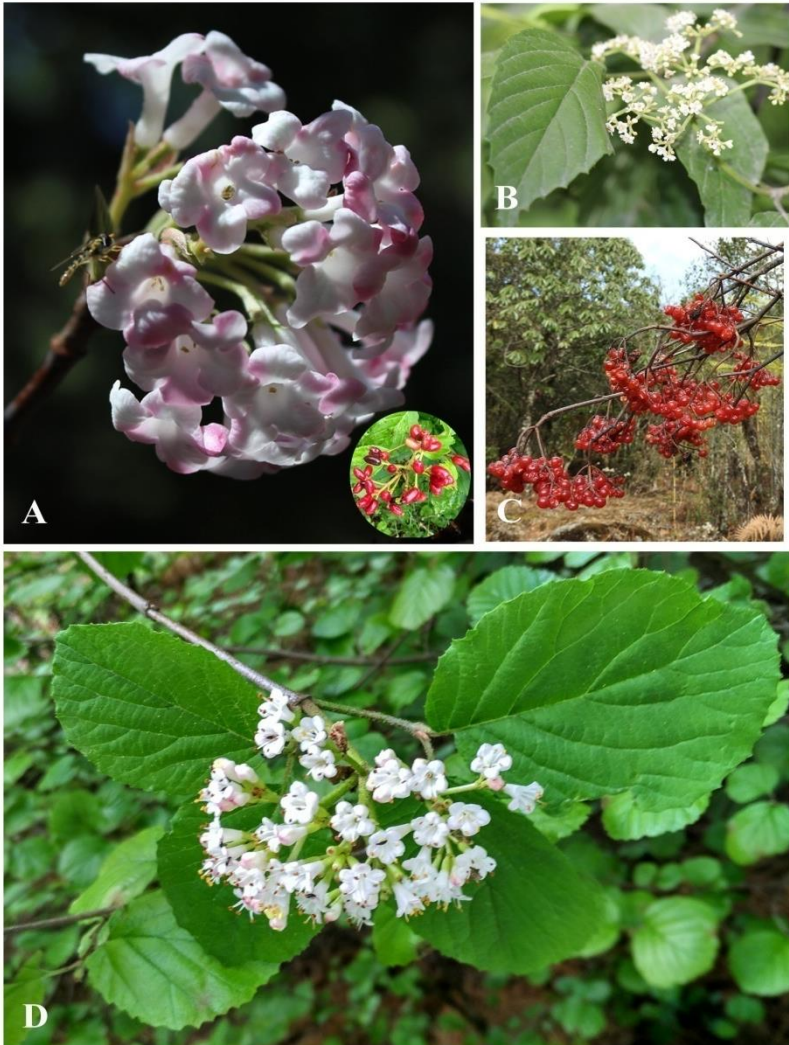


Fig.1