Aconitum ferox Wall. ex Ser.- An Important Medicinal Plant of Sikkim

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Aconitum ferox is referred to as "vatsanabha" in the Shushrutasamhita. It is used in treatment of cough, asthma, leprosy, fever, muscular rheumatism as well as against snake bite, neuralgia, skin disease, acute gout, etc. Because of its over exploited in Himalayan region for medicinal use, it has become present day an endangered plant of Sikkim. Recently its population is very scanty in nature, so its ex-situ and in-situ conservation is necessary. One another plant Aconitum chasmanthum is an alternative source of this plant and it is usually sold under the name "vatsanabha".

Introduction

About 3000 plants are known in India for their medicinal use and about 6000 plant are used as traditional, folk and herbal medicine. The country has about 2500-3000 species of medicinal plants and our dependence on medicinal plants has in no way minimized by the use of modern systems of synthetic drug whose use are not without side-effects. Phytochemical contents of the genus Aconitum have been bestowed with the number of medicinal compassion which includes antibacterial, antioxidant anti-proliferative, enzyme inhibition activities, etc. Its tuberous roots are 5-8 cm long and conical. They are first sweet in taste and then bitter and with tingling effects. India receives its supply mostly from Nepal (Sheokand et al., 2012; Sarkar et al., 2012).

In the tenth century, the Persian physician Alheroo described the plant under the name bish. Europeans first became aware of Aconitum ferox in the nineteenth century during journeys to Nepal. During the nineteenth century, there was a thriving trade in the root tubers of Aconitum ferox, which were brought from Lhasa via Le (Mustang) to Ladakh.

Aconitum ferox Wall. ex Ser.

Family: Ranunculaceae

Synonym: Aconitum atrox Walp.; Aconitum atrox (Bruhl) Mukerjee; Aconitum virosum Don., Aconitum napellus var. rigidum Hook.f.

Meaning of Aconitum L. Gr. Akoniton derived from akon, an arrow. In ancient times the juice of the roots of Aconitum was used as an arrow poison. According to Pliny
the plant was abundant in Acone, a harbor in Heraclea in Bithynia near Black Sea and hence the generic name, supposed to be derived from it. In Greek mythology the name *Aconitum* was derived from the Mount Aconitus where Hercules had a fight with Cerberus a mad dog, progeny of Typhon and the serpent woman Echidna. It was believed that this plant originated from the deadly saliva of Cerberus (Nayar, 1985).

**Vernacular name**-
- Bhutia: Bikh, Bikhma
- Nepali: Akphale, Bikh, Bish, niloBikh
- Lepcha: Nyine
- English: Aconite, Monkhood, Wolf’s bane, Indian aconite
- Sanskrit: Vatsanabha, Visa
- Hindi: Bish, Mahoor
- Gujarati: Vachang
- Marathi: Vachang
- Tamil: Vasnumbi
- Telugu: Vasanabhi

**Common name**: Indian Aconite, Bishnag

**Trade name**: Bish

**Ayurvedic**: Garala, Vajraanga, Visha, Vatsanaabha, Sthaavaravisha, Vatsanaagaka, Shrangikavisha, Amrita

**Unani**: Bish, Bishnaag

**Siddha**: Vasanaavi, Karunaabhi

**Folk**: Bish, Mithaa Zahar, TeliaVisha, Bacchanaag

**Habit**: Perennial plant

**Frequency**: common around 10,000-14000 ft altitude.

**Habitat range**: The plant is a common sight at lower alpine region during July-August. In the Sikkim Himalaya, it is found at the North-eastern Sikkim, Nathula region, Singalela ridges and the Dzongri area.

**Distribution**: Temperate Alpine Himalayas of Sikkim at 10,000 to 14,000 ft altitude in Kishong-La, Thangu at North Sikkim. It is the second most used species and distributed from Nepal to Arunachal Pradesh.

**Plant Description**: Perennial erect herb growing up to 2 m in height; roots look like the navel of children (Plate-1).

**Root**: Caudex carrot-shaped or fusiform, small, 0.7–1.6 cm.

**Stem**: 5.5–38 cm tall, simple or basally branched, basally glabrous, apically sparsely retrorse and appressed pubescent.

**Leaf**: Basal leaves long petiolate; petiole 2–14 cm, glabrous, base without distinctsheathe; leaf blade reniform-pentagonal or reniform, 1–2×1.3–3.2 cm, abaxially glabrous, adaxially sparsely pubescent, 3-parted nearly to middle; central lobe rhombic-obtrapezoid; lateral lobes obliquely flabellate, unequally 2-fid nearly to middle. Cauline leaves 1–3, shortly petiolate. Inflorescence 1–5-flowered; rachis and pedicels retrorse
Plate-1. Different plant parts of *Aconitum ferox* Wall. ex Ser.
Pubescent; proximal bracts leaf like, others linear.

**Inflorescence** - Proximal pedicels 2.4–6.5 cm, distal ones 1.5-2 cm, with 2 distal bracteoles or bordering flower, bracteoles linear, 5.5–6.5 × 0.6–1.2 mm.

**Calyx** - Sepals violet or purple, abaxially sparsely pubescent; lower sepals 0.8-1 cm; lateral sepals 1.4-1.8 cm; upper sepal navicular, 1.4-1.8 cm from base to beak, lower margin slightly concave or sub-erect.

**Corolla** - Petals glabrous; claw slender; limb small, 2-3 mm; lip 1-2 mm, slightly concave.

**Androecium** - Stamens sparsely pubescent; filaments sparsely pubescent, entire or 2-denticulate.

**Gynoecium** - Carpels 5, sparsely pubescent.

**Fruit** - Follicles 1–1.4 cm. Seed sub-pyramidal, 1.5-2.5 mm (Grierson & Long, 1984).

**Phenology** - Its budding starts from June last week. First flower open usually in July second week to third week. September month is most blooming time and after it, flower fall starts and at the end of month of August, all flowers fall and fruits initiate. When the winter time starts (November to December), all fruits reach to maturity.

**Specimen examined:** Sikkim- Kishong La, North Sikkim 18.9.1996, 4000m, SK Jana, col.no-18304 (BHSC-30774).

**Associated vegetation** - *Meconopsis paniculata, Podophyllum hexandrum, Pedicularis longiflora* and many species of Genus *Rhodiola, Carex, Eragrostis, Potentilla, Aster, Gnephaliun* etc.

**Constituents:** The tuber of *Vatsanabha* contains 0.4–0.8% diterpene alkaloids and the concentrations of aconite in fresh plant are between 0.3% and 2.0% in tubers and 0.2% and 1.2% in the leaves. The highest concentration of aconite is found during winter. The major alkaloids are aconitine, pseudaconitine, bikhaconitine, diacetylpseudaconitine, aconine, picroaconine, veratrylpseudaconitine, chamaconitine, veratrylgamaaconine and di-Ac–Y-aconitine.

**Parts used** - Tuberous root.

**Medicinal uses** - It is medicinally important plant and its major uses are as follow:-

- Root is used as an antidote for lethal poisons of local origin. The root powder is used to relieve severe body pain, diabetes, debility, asthma, ear and nose discharge, leprosy, paralysis, rheumatism, and typhoid. It is also considered to be diaphoretic, diuretic, expectorant, febrifuge, and dyspepsia (Gurung, 2002). It is extremely poisonous and used against snake bite, neuralgia, skin disease, acute gout, etc.
• *Aconitum ferox* is also known as smanchen, "great medicine"; the crushed roots, mixed with bezoar stones, are used as a universal antidote. The root is also used to treat malignant tumors. In Nepalese folk medicine, blue aconite is used to treat leprosy, cholera, and rheumatism.

• The root is also used as an antidote to hartal, believed to be a lethal poison of local origin. The root finds use in cold, neuralgia and inflammation, fever, indigestion, and stimulation of bile secretion.

**Conclusion:** *Aconitum ferox* is an important medicinal plant used to cure various diseases like leprosy, paralysis, rheumatism, diabetes, debility etc. Because of its over exploitation for medicinal use, its population continues to decline in nature. So it needs to conserve for future use.

**References**


