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29. INDIGENOUS USES OF RHODODENDRONS IN NEPAL

Nepal (total area 147,181 sq. km) has an alluring blend of various habitats and biodiversity. The snow-capped Himalayan peaks tower in a cluster to the north, while the *terai* plains, about 25 km wide, stretch to the south. The mid-land is covered by hills (about 77% of the total land mass), where many fertile valleys like Dang, Surkhet, Pokhara and Kathmandu are located. This mid-land region harbours many important *Rhododendron* species. It is estimated that 32 species of *Rhododendron* occur in Nepal, and 28 of them are found in the Jaljale and Milke areas in east Nepal. *Rhododendrons* have supposedly originated about 100 million years ago in the Yunan province of China (de Milleville 1993). Presently, the recorded number of *rhododendrons* in China is 460 species, of the 850 in the world. They range in size from 20 m (giant) to 15 cm (dwarf). Their beautiful flowers can be observed from February (1,500 m and above) to June (3,500 m and above). Dwarf species like *Rhododendron setosum* and *R. lowndesii*, which are found above the timberline, are endemic to Nepal. The common species, *Rhododendron arboreum* was designated as the National flower of Nepal in 1962.

The pollens of many species of *rhododendrons* are poisonous, and hence the honey collected by the wild bees becomes poisonous. Therefore, the villagers collect honey only after the flowering season of *rhododendrons*.

Importance and belief

Generally, *Rhododendron arboreum* bears flowers during February-May; the other species rarely flower during this period. *Rhododendrons* are an essential part of Nepalese life and culture. Its flowers have an important significance in religious ceremonies and are sold in urban areas, around temple premises. During this period, the villagers decorate their homes with the flower. Many poems and songs have been composed in praise of these beautiful flowers. A Nepali

song written by Kshetra Pratap Adhikari and sung by the Late Narayan Gopal Gurubacharya is worth mentioning here:

Ma ta lali gurans bhayechhu
Banai bhari phuli dinchhu
Manai bhari phuli dinchhu
Phant haru lai kasle chumchhu
Bhir ma pani phuli dinchhu

This may be translated as:

"I have now become a *rhododendron*, and will bloom throughout the forest to allure one's heart. I will not care for the plain flat land; I will flower even in difficult sloping ground."

There is an interesting folk story concerning the beauty of the *Rhododendron*. The *Rhododendron (Rhododendron arboreum)*, considered to be a female, once went to the Nepalese Alder (*Alnus nepalensis*), a male, with a marriage proposal. The Alder, which has a soft wooded, straight stem, turned down the proposal angrily, for she had straggling branches and looked ugly. Disappointed, the *Rhododendron* turned back, with no further communication with the Alder. In February-May when she flowered, covering the mountain slopes with her beautiful flowers, the Alder lamented his rude behaviour. He regretted rejecting the beautiful *Rhododendron's* offer and asked for forgiveness, but this time she refused to talk to him. The disappointed Alder then decided to commit suicide and jumped from a steep slope. It is believed that this is why the Alder grows around river gorges and steep slopes (Manandhar 2002).

Enumeration

This information was collected during the course of ethnobotanical studies among different ethnic groups. The plants are arranged alphabetically with botanical names, local names (Gur. Gurung; Lim. Limbu; Nep. Nepali; Sep. Sherpa; Tam. Tamang; Tib. Tibetan), and uses. The specimens are

deposited in the National Herbarium and Plant Laboratories, Godavari, Lalitpur, Nepal.

Rhododendron anthopogon D. Don; Sep. Balu chansinn, Balu Kaphe, Dhupi; Tib. Tazak-tbum.

Leaf is boiled with water for about 15 minutes, strained and the concoction is consumed as sedative. Infusion of leaf and flower is taken as substitute for tea. Dried leaves are used for incense.

R. arboreum Sm.; Lim. Thokpheklaphun; Nep. Laligurans; Sep. Tahnu mhendo; Tam. Para mhendo

Flowers are pickled, and their juice is made into a refreshing drink. Petals are chewed for their sweet and sour taste. Children suck the nectar deposited at the base of the corolla. Juice of the root and stem is used to alleviate the symptoms of asthma. Six teaspoons of bark juice, 4 times a day, is given to relieve jaundice. Paste of young leaves is applied on the forehead to cure headache. Juice of the flower is given to cure bleeding dysentery, and as an expectorant. Powdered flower or leaf is taken as snuff to stop nose bleeds, and is considered effective for curing cough and cold. The flower is believed to have powers to dissolve fish bones that get stuck in the throat and is therefore kept at home for such an emergency. The wood is good fuel as it gives heat for a long time; it is easy to cut and is used to make household utensils. Powdered leaves are used as fish poison. Young leaves are poisonous for livestock. Flowers are used to make dye.

R. barbatum Wall. ex. G. Don; Gur. Ryapu; Nep. Gurans, Gluraunsi.

Powder of tender shoots and leaves is taken as snuff to alleviate cough and cold, and also considered good for treating sinusitis. Fresh leaves and tender shoots are poisonous for cattle. Leaves and bark are used for poisoning fish. Nectar of flowers is intoxicating.

Constituents: Leaf: Andromedotoxin (Chopra *et al.* 1958).

R. campanulatum D. Don; Gur. Syapu; Nep. Anilo chimal, Cheraidu, Nilo chimal, Seto gurans; Sep. Chimal mhendo

Powder of leaf is taken as snuff for alleviating cough, cold and respiratory problems. Paste of tender leaves is applied to relieve rheumatism. Flowers are used to treat headache. Juice of immature fruit is considered good for digestive disorders. Tender leaves are poisonous for cattle.

R. campylocarpum Hook. f.; Nep. Pahlenlo chimal.

Paste of tender leaves is applied to cure headache.

R. cinnabarinum Hook. f.; Nep. Sanu chimal; Sep. Balu

Fresh petals are edible. Leaves are poisonous for cattle and goats. Wood is used as fuel, but its smoke accelerates inflammation of the eye.

Constituents: Leaf: Andromedotoxin (Chopra *et al.* 1958)

R. cowanianum Davidian; Sep. Balu

Juice of bark is applied to treat cuts, wounds and boils.

R. dalhousiae Hook. f.; Nep. Lahare chimal

Bark or leaf juice is applied to treat cattle wounds.

R. falconerii Hook. f., Nep. Kurlingo

Squeezed bark is used as fish poison.

Constituents: Andromedotoxin (Chopra *et al.* 1958)

R. fulgens Hook.f.; Nep. Kurlingo

Young leaves are poisonous for cattle. It serves as good fuel wood.

R. grande Wight; Nep. Seto gurans

Juice of bark about 2 teaspoons 3 times a day is given for diarrhoea.

R. hodgsonii Hook.f.; Nep. Khorlingo

Warm juice of bark is applied to treat muscular swelling, caused by injury.

R. lepidotum Wall. ex G. Don; Nep. Sebaro, Sulu; Sep. Balul sukpa; Tam. Balu nakpo

Juice of plant is a blood purifier. In Jumla area, the villagers boil 200 gm of leaves with 4 litres of water, and sprinkle it on cots and mats to kill bugs (Manandhar 1986).

R. lendleyi T. Moore; Nep. Bhare chimal

Tender leaves are poisonous for cattle.

R. lowndesii Davidian; Tam. Barjhum mhendo

Juice of bark is applied to treat boils and pimples.

R. setosum D. Don; Nep. Jhuse sunpati; Sep. Siru, Sulu

Decoction of petals is used as substitute for tea.

R. triflorum Hook.f.; Nep. Phenla chimal

Warm juice of root is applied to treat muscular swellings, caused by injuries. Tender leaves and shoots are poisonous for cattle.

R. wightii Hook. f.; Nep. Radu

Tender leaves and shoots are poisonous for cattle.

The present study gives an account of 18 species, which are used by the local villagers. Of these, 8 species are considered poisonous to cattle, and 2 species are used for poisoning fishes. The Gurung, Lepcha, Sherpa and Tamang tribes use the leaves of *Rhododendron anthopogon* and *R. lepidotum* for incense, which is now also sold in urban markets. The petals of *R. anthopogon* and *R. setosum* are used as a substitute for tea. The petals of *R. arboreum* are eaten fresh or are pickled. Juice of petals is used as fresh drink, *sarbat* in Nepali. For medicine, 2 species each were used to treat diarrhoea and dysentery, boils and pimples, cuts and wounds, and cough and cold. Likewise, one species each was used for muscular swelling, sinusitis, jaundice and asthma.

Conservation

The main habitat of Rhododendrons is the forests, which are depleting fast, at the rate of 2.1% per year (Pudasaini 1992). Among the various reasons for this is poverty, which cannot be ignored. All species of Rhododendrons are mainly

used for fuel wood. At high altitudes near the timberline, the bushes of rhododendrons are the main source of fuel wood. In mid-hill belts, the trees are considered good fuel wood for their lasting heat, and the coal is useful to blacksmiths and goldsmiths. The wood of *R. arboreum* is soft, and is preferred for carving and making household utensils.

Rhododendrons can be protected in their natural habitat with people's participation. For instance, ecotourism can be beneficial to the locals and protect nature at the same time. A rhododendron conservation area could be established in

Milke and Jaljale areas of east Nepal. Some non-governmental organisations like Echo himal, Gurans Sanrakshan Samiti are already actively conserving the rhododendrons in east Nepal.

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30. *PASPALUM CONJUGATUM* BERG. (POACEAE), A NEW RECORD TO ANDHRA PRADESH, INDIA

The genus *Paspalum* L. is represented by c. 250 species (Cope 1982; Sreekumar and Nair 1991; Shukla 1996). Distributed in the warmer and drier parts of the world, the genus is reported to be represented by 14 species in India (Shukla 1996). During intensive exploration of the Eastern Ghats of Andhra Pradesh, the authors collected an interesting specimen of *Paspalum* in Chintapalli forest of Visakhapatnam district. On further examination, the specimen was identified as *Paspalum conjugatum* Berg. After a thorough perusal of literature, the species is being reported as a new distributional record for the State of Andhra Pradesh.

Paspalum conjugatum Berg. in Act. Helvet. Phys. Math. 7: 129, t.8. 1772; Bor, Grass. Bur. Cey. Ind. Pak. 336. 1960.

Perennial, stoloniferous, rooting at nodes; culms to 1.1 m, surface smooth; nodes glabrous. Leaf sheaths 6-20 x 0.6-1 cm, surface glabrous, ciliate along one margin, compressed, keeled. Ligule rounded, to 1 mm, membranous. Leaf blade 17-25 x 0.7-1 cm, linear-lanceolate, surface glabrous, apex acuminate, base narrow, ciliate, margin ciliate. Racemes 2, conjugate, 6-18 cm; rachis triquetrous, glabrous. Spikelets sessile, solitary, alternate on the rachis, 1.8-2 x 1-1.5 mm, ovate or broadly elliptic, or orbicular acute, hairy, greenish-yellow. Lower glume absent. Upper glume ovate or orbicular, 1.5-1.9 x 1-1.3 mm, membranous, 2-nerved, long ciliate along the margins. Lower lemma barren, ovate or orbicular, and acute, 1.6-1.8 x 1 mm, membranous, 2-nerved. Upper lemma ovate or orbicular, 1.5-1.7 x 1 mm, crustaceous, 2-keeled. Palea ovate, 1.5 x 1 mm, crustaceous, 2-keeled. Stamens 3, anthers

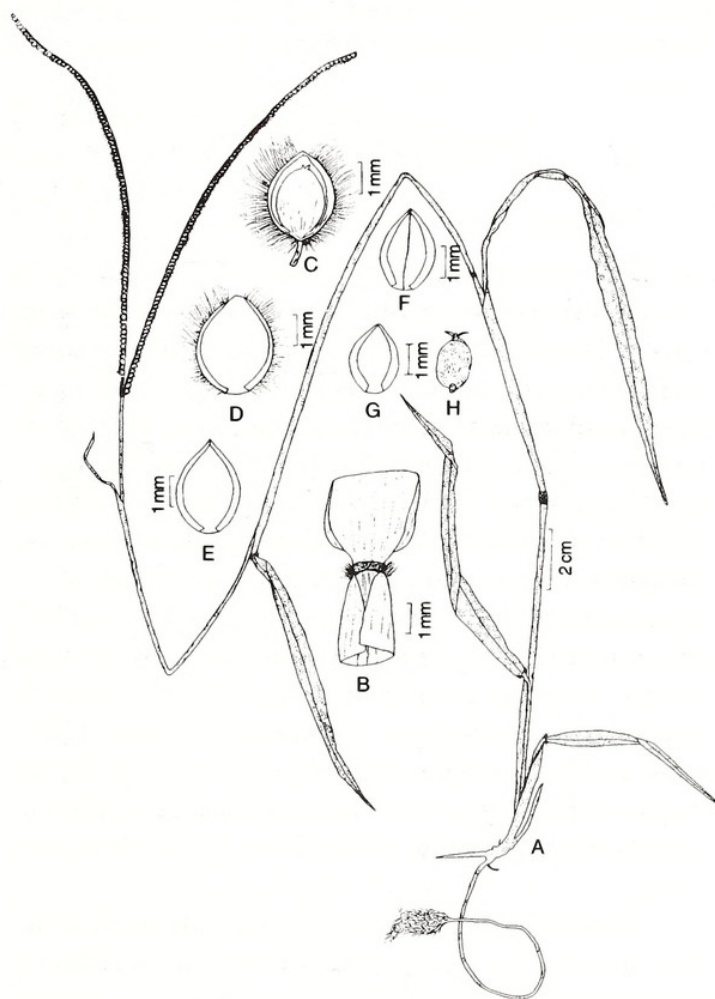


Fig. 1: *Paspalum conjugatum*
A. Habit; B. Ligule; C. Spikelet; D. Upper glume; E. Lower lemma;
F. Upper lemma; G. Palea; H. Grain



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