

## Sanai – A wild edible vegetable plant species of Jharkhand

**There are several unexploited plant species available in nature. Many cultivated vegetable plant species which are important part of our daily diet have originated from wild. *Crotalaria tetragona* Roxb. ex Andr., commonly known as sanai under the family Fabaceae a wild edible vegetable plant species has been collected from Saranda forest, Jharkhand. The specimen is also noted from kitchen garden Patratu, Ranchi, Jharkhand owing to cultivation for nutritional purposes. Its flowers are eaten by Santhal (a tribe) as a delicious vegetable food item. It has good potential which can be exploited for vegetable purpose.**

**C**ROTALARIA is a large genus in the family Fabaceae (Leguminaceae- Papilionaceae). It comprises of more than 600 species, often called rattlepod, distributed in all tropics and sub tropics. Several species are economically important as fibre, fodder, forage, soil manuring and medicinal uses. This genus shows its largest diversity in the tropical African region followed by Southeast Asia and Central America. More than 90 species occur in diverse habitats of India, of these over 20 species are considered to be of economic value and only three species namely *Crotalaria juncea* L., *Crotalaria retusa* L., *Crotalaria micans* Link were known from India as edible, of the seven species cultivated in India namely *Crotalaria juncea* L., *Crotalaria retusa* L. and *Crotalaria sericea* Wild are grown on large scale mainly for fibre. However, *Crotalaria tetragona* Roxb. ex Andr. (sanai) has not yet been reported for its cultivation and utilization of flowers, flower buds and pods in Bihar and Jharkhand and its adjoining areas.

The southern belt of Jharkhand state being one the reservoir of the plant diversity in the Indian gene centre is also known for its richness in ethnic diversity and traditional culture.

The majority of the population are rural and prefer to grow primitive landraces of crop plants by sifting/Jhum cultivation (locally called kuraon). In order to fulfil their basic requirements, they depend on the wild economic species and to make these resources easily accessible to cultivate.

### Germplasm collection

Many wild species including the genus *Crotalaria* (*Crotalaria tetragona* Roxb. ex Andr., *Crotalaria juncea* L., *Crotalaria retusa* L., *Crotalaria spectabilis* Roth, *Crotalaria pallida* Aiton and *Crotalaria verrucosa* L. have been collected from erstwhile Bihar and Jharkhand and these are grown in the Bhagalpur University Botanical Garden, University Department of Botany, T. M. Bhagalpur

University, Bhagalpur, a conservation centre for rare, endangered and threatened plants of Bihar and Jharkhand state. A collection trip of wild plants was undertaken during the survey work of Sarada Forest Mining area in 2015. During the surveys the first author came across with this interesting species in scrub forest. The flowers of this species were being sold in the local market by santhal tribal communities at the rate of ₹ 20 per kg. This species was identified as *C. tetragona* Roxb. ex Andr. locally known as Sanai. The species was also observed under occasional cultivation in kitchen garden in Ranchi, Jharkhand area. Economic uses/ edible value were noted on spot, surveyed by Santhal people.

### Taxonomic and botanical description

It is an erect-ascending, perennial herb, 2-2.5 meter high, appressed, hairy and tetragonous stem with sulcate silky branches. The leaves are simple alternate, short petioled, linear or oblong-lanceolate, 10-20 × 1.5-3 cm obtuse, mucronate at apex, rounded at base, thinly appressed hairy above, densely appressed-pubescent beneath. Inflorescence simple raceme, 15-20 cm, with handsome lemon yellow flowers 1.5-2.5 cm long, 4-10 or many arranged in loose racemes and often combined into leafy panicle. Pods sub sessile, oblong, 3-6 cm long, densely persistently dark brown and velvety with 12-20 glossy dark brown to black seeds. Flowering and fruiting in October to December. This species shows close resemblance to cultivated species *C. juncea* but can be easily recognised by its lax habit and tetragonous stem, long pods, larger and linear or lanceolate and acuminate leaves.

### Species Distribution

*C. tetragona* Roxb. ex Andr. is distributed mainly in tropical Asia. This species has been reported from dries hilly area along the lower hills, scrub jungles, road side and riverine slopes upto 1,200 meter. Occasionally the



*Crotalaria tetragona* (Sanai), growing in Bhagalpur University Botanical Garden

plants were also recorded from kitchen gardens in semi domesticated stage.

Some of the *Crotalaria* species known for edible and culinary purpose are *C. longirostrata* Hook. et. Arn. , *C. glauca* Willd., *C. ochroleuca* G. Don, *C. brevidens* L., *C. retusa* L. ( for edible leaves); *C. glauca* Willd., *C. ochroleuca*, *C. juncea*, *C. micans*, *C. tetragona* ( for edible flowers and buds); *C. glauca*, *C. ochroleuca* , *C. juncea*, *C. micans*, *C. tetragona* ( for edible pods); *C. pallida*, *C. juncea* (for edible as pulse).

### Propagation

Seeds; Cuttings (It is done for pot plant cultivation in ornamental point of view).

### Cultivation

The plants of *C. tetragona* are preferred in a sunny position with dry moist soil, harmful the water logged soil, it is propagated through seeds. Seeds are soaked in water for few hours then it is shown in prepared well drainage bed. Planting is generally done during rainy season. So the field is not generally irrigated. Crops take 4-5 months to mature fully. Flowering and fruiting are obtained in October to December. One time plants are grown and seeds are formed, then seeds are dispersed on field and germinate automatically. Flowers and buds are harvested to sell in the market. Young pods are cooked as vegetable and seeds used as pulses.

This plant could be grown as green manure because its roots have capacity to fix the atmospheric nitrogen. The species has symbiotic relationship with certain soil bacteria.

### Ethnobotanical information

The inhabitants were selling different wild species including flowers and flower buds of *C. tetragona* in the market along with common vegetables and fruits. The

tribal population consumed different wild species in their daily diet. The flowers of *C. tetragona* are cooked as vegetable and also boiled with non-vegetarian food items to increase the flavour. The Santhal people are very fond of such dishes. The garnishing with flowers in soups is delicious. Occurrence of this species is a semi-domesticated stage in kitchen garden and its wide use for edible purposes in tribal belt. It suggests a trend towards domestication. The information regarding its cultivation has not been recorded hither to in Jharkhand.

### Uses

Flowers and flower buds are eaten as vegetable and for garnishing. Seeds are used as pulses. Young plants are used as green manure and fibre crop. No medicinal value has been reported as of yet.

### Conclusion

Germplasm of *C. tetragona* has been collected and conserved at Bhagalpur University Botanical Garden, Department of Botany, T. M. Bhagalpur University, Bhagalpur for utilization and further research and development. Keeping in view its value as edible seeds (as pulse), pods and flowers (as vegetable), flower and flower buds (garnishing and showy flower) as potential ornamental plant species, this may be considered as a potential multipurpose plant for cultivation. As it closely resembles sunnhemp, there is need of further systematic studies towards introduction as fibrous plant.

For further interaction, please write to:

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