



A Pharmacological and Phytochemical Based Review on *Uraria lagopodoides* (L.) DC

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Abstract

Uraria lagopodoides (L.) DC (Leguminosae) have been using as a traditional medicinal plant in Bangladesh, India, Africa and other countries in the world and it plays an important role in treating diseases. It is a trailing perennial herb and flowering occurs usually from May to September. Pharmacological and phytochemical literature survey on *U. lagopodoides* revealed the presence of flavonoids, glycosides, reducing sugars and phenolic components; therapeutic uses like cytotoxic, anti-inflammatory, anti-implantation, abortifacient, analgesic, anti-microbial, anti-oxidant activities. This review may help the researchers who were involved in the field of ethnopharmacology.

Key words: *Uraria lagopodoides* (L.) DC, Herb, Phytochemical, Pharmacological, Ethnopharmacology.

1. Introduction

Plants have been used from ancient times to attempt cures from diseases and to relieve physical and mental sufferings. About 85% of the rural population of India utilized wild plants for the treatment of various ailments. Compared to allopathic drugs the plant base medicines have its own unique status. Natural forests are the key resources for plant base medicines. Majority population of poor rural households in developing countries depends on plant and animal products. India has one of the medicinal plant resource related health cultures in the world. Government of India has reported that for 65% of India's population, traditional medicine is the only available source of health care. (Hina Hamid *et al.*, 2008). India is one of the world's 12 mega diversity centers having rich vegetation of about 47,000 plant species and a wide variety of medicinal plants. Due to rich vegetation various medicinal systems such as; Ayurveda, Unani, Homoeopathy, Siddha, Ethnic, etc have been formulated in India to cure diseases. In the Indian State of West Bengal, major source of medicinal plants is within forest areas. Out of 11,879 Km of forests in the state, the reserve forest comprises of 7,054 Km, that is, 54% of the total forest area and 3,772 Km, that is, 30% of the total

forest area constitutes protected forest. Again 34% of the total forest area in the state are declared as protected areas where conservation of the habitat get due emphasis. Thus, medicinal plants resources in the protected areas and the remaining reserve forests get satisfactory protection, though the resource in the remaining forest areas is under great stress in view of human interference and other biotic factors (Abdullah *et al.*, 2008).

Among the various plants, *Uraria lagopodoides* (L.) DC (Leguminosae) plays important role in treating diseases. It is a trailing perennial herb locally known as 'Prisniparni' found in Bihar, Orissa, West Bengal, Nepal, China and Northern Australia. It is an ingredient in ayurvedic medicine called "Dasamula". The plant has been reported to be aphrodisiac, useful in treatment of asthma, dysentery, delirium, ulcers, malarial fevers, fractures of bones, inflammation of chest and diarrhea. The phytochemical studies of the ethanolic extract of *U. lagopodoides* revealed the presence of flavonoids, glycosides, proteins and phytosterols. The aqueous extract showed oxytocic activity in gravid and non-gravid uterus of animals, anti implantation effect on rats and antispasmodic effect on guts of rabbits and uteri of rats. The alcohol and aqueous

extract of the plant shows anti-inflammatory and analgesic activities. (Sanyal et al., 2017)

***Uraria lagopodoides* (L.) DC**

Botanical synonyms (The plantlist.org., 2018).

Doodia alopecuroides Roxb.

Doodia lagopodioides Roxb.

Hedysarum lagopodioides L.

Hedysarum lagopodioides Burm.f.

Lespedeza lagopodioides Pers.

Lespedeza lagopoides Pers.

Uraria aequilobata Hosok.

Uraria cercifolia Desv

Uraria hamosa var. *formosama* Matsum

Uraria lagopodioides (L.)DC

Uraria lagopoides (Burm.f.)DC.

Uraria yaeyamensis Hayata

III. Vernacular names (Medicinalplants.in., 2018)

Hindi	: pithran
Kannada	: laageli, nadiyaala bone, naribaaladagida, narihonne, nariyaalahonne
Marathi	: davala, peethavana
Nepali	: prishneeparnee
Oriya	: prysniporni
Sanskrit	: kalasi, prsniparni, saliparni
Tamil	: ankirivalli, chithamalli, moovilai, orilai, orilai-palai
Telugu	: anghriparnika, jibilikechettu, kolaponna, nakkathokaponna, nakkatokaponna

Taxonomy (Species.wikimedia.org., 2018)

Kingdom	: Plantae
Clade	: Angiosperms
Order	: Fabales
Family	: Leguminosae
Genus	: <i>Uraria</i>
Species	: <i>lagopodioides</i>

Botanical description (Flowersofindia.net., 2018)

Uraria is an herb, prostrate spreading up to 2ft tall. Leaves are mostly trifoliate and rarely 1-foliate, carried a 1-2cm long stalk. Central leaflet is nearly round or elliptic to ovate, gray-yellow velvety on the underside, base rounded or heart shaped, tip is rounded or notched. Flowers are pale purple pea like

and are 3-6cm long present at the end of the branches. Sepal cup is 5-parted, lower sepal is about 2 times as long as upper ones, white hairy. Flowers are about 6mm and standard obobvate, base is flat. Flowering is May to September.



A) Aerial parts



B) Mature fruit body



C) Flower

Fig. 1. *Uraria lagopodoides* (L.) DC

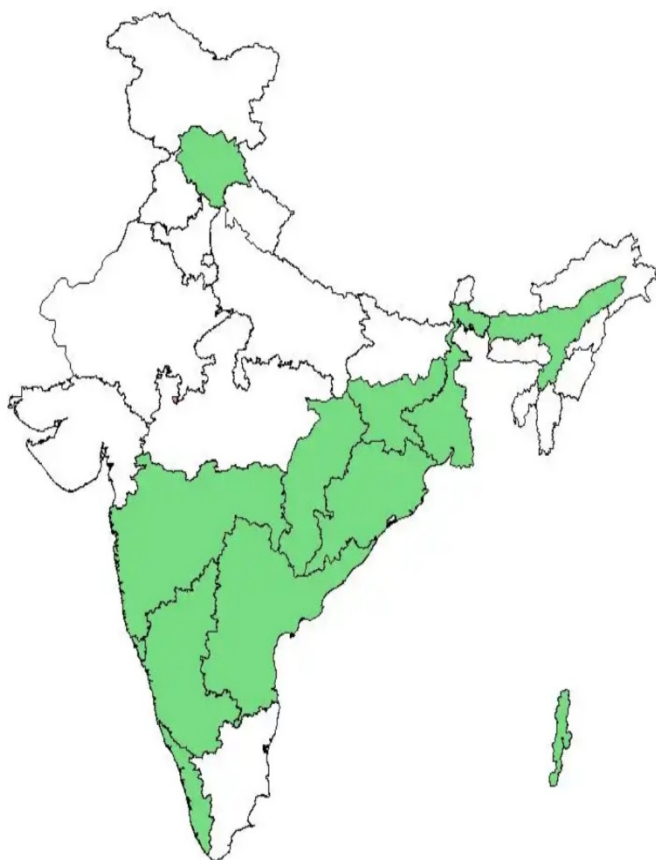


Fig. 2. Distribution of *Uraria lagopodoides* in India

Theraupetic uses (Sanyal et al., 2017):

Wound healing: The paste of leaves is applied to wounds for recovery.

Anti-inflammatory: The whole plant is used medicinally for relieving swelling. Aqueous and alcoholic extracts of the plants are used to treat intermittent fever, asthma and chest inflammation.

Anti-diarrhea: Decoction of the leaves and roots for the treatment of dysentery and diarrhea.

Abortifacient: An aqueous extract of the leaves has abortifacient properties. On the other hand the paste of roots mixed with milk is given to a pregnant woman as a remedy against miscarriage.

Laxative: The whole plant is consumed to have clear bowl.

Cytotoxicity:the aerial parts ethanol extract of *U. lagopodoides* showed a strong cytotoxic activity.

Aphrodisiac: The whole plant is also consumed to stimulate sexual desire.

Others - this plant is used along with other plant to treat rheumatism, bleeding piles, catarrh and

scorpion sting, asthma, dysentery, delirium, ulcers, malarial fever, fractures of bones, inflammation of chest.

Reported pharmacological activities

The following tables (Table 1) self explains the various pharmacological activities and phytochemical compounds reported so far on *U. lagopodoides*.

Table 1. Pharmacological activities reported on *Uraria lagopodoides*.

Part of the plant	Pharmacological activity reported	Reference
Aerial parts	Anti-inflammatory/membrane stabilization activity and Analgesic Activity	Hinna Hamid et al., 2004
Roots	Anti oxidant activity	Siva kumar et al.,2012
Roots	Anti microbial activity	Siva kumar et al., 2011
Stems and leaves	Anti abortifacient activity	Sharma et al., 1969
Whole plant	Anti-snake venom activity	Xiafen, 1986
Shoot	Anti-implantation activity	Medicinal Plants of Bangladesh. 2017
Aerial parts	Cytotoxic activity	Islam et al., 2012
Whole plant	Anti-cancer and Antiallergic	Patocka et al., 2003
Whole plant	Antidiarrhoeal Activity	Ravi kumar et al., 2016
Whole plant	Anti diabetic activity	Ravi kumar et al., 2014

There were very little phytochemical works reported on the *U. lagopodoides*. As the availability of literature few compounds were isolated from different parts of the *U. lagopodoides* (Table 2).

Table 2. Phytochemical compounds reported on *Uraria lagopodoides*

Part of the plant	Compounds' reported	Reference
Roots and leaves	Tannins; Glycosides; Flavanoids-quercetin; Steroids; Saponins; phenolic component – pyrrtocatechol.	Rupa Shaw Sanyal et al., 2017
Aerial parts	Alkaloids; Glycosides; Tannins; and Reducing sugars	Torequillslam et al., 2012
Whole plant	Carbohydrates; Flavonoids; Glycosides; Alkaloids; Saponins; Steroids; and Tannin; Reducing sugars.	Monir Hossain et al., 2015
Aerial parts	7'-carboxylic-n-heptacosanyl-glutarate, n-nonacosan-6-ol-1,13-dioic acid, 4,12-dimethyl-n-tetradeca-6,8,10-triene-1-ol-4-oic acid, and 8,14-13,17-diseco-stigmast-5,22-diene-3- α -ol, 2-hydroxytricontane and β -sitosterol glycoside.	Hamid et al., 2007
Whole plant	3-hydroxy-7,4-dimethoxyflavone	Sood et al., 2005

Other species of *Uraria* (En.wikipedia.org, 2018)*Uraria acaulis* Schindl.*Uraria acuminata* Kurz*Uraria balansae* Schindl.*Uraria barbatacaulis* Iokawa, T.Nemoto, J. Murata & H. Ohashi*Uraria campanulata* (Benth.) Gagnep.*Uraria candida* Backer*Uraria cochinchinensis* Schindl.*Uraria cordifolia* Wall.*Uraria crinita* (L.) Desv. ex DC.*Uraria gossweileri* Baker f.*Uraria gracilis* Prain*Uraria kurzii* Schindl.*Uraria lacei* Craib*Uraria lagopodioides* (L.) DC.*Uraria lagopus* DC.*Uraria picta* (Jacq.) Desv. ex DC.*Uraria pierrei* Schindl.*Uraria poilanei* Dy Phon*Uraria prunellifolia* Graham ex Baker*Uraria rotundata* Craib*Uraria rufescens* (DC.) Schindl.*Uraria sinensis* Franch.**Conclusion**

The present article describes the review on medicinal importance, past pharmacological and phytochemical work done on the selected plant *Uraria lagopodoides* (L.) DC. The plant has been showing the various therapeutic uses like aphrodisiac, asthma, dysentery, delirium, ulcers, and malarial fevers, fractures of bones, laxative and diarrhea. The plant shows pharmacological activities like cytotoxic, anti-inflammatory, abortifacient, analgesic, anti-microbial, anti-oxidant activities. The plant having phytochemical components like tannins, glycosides, flavanoids, steroids, saponins, phenol components, reducing sugars, carbohydrates and alkaloids.

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