

KALPNATH-A TRUSTED POTENT ETHNOMEDICINAL PLANT FROM NORTH CENTRAL TARAI FORESTS OF U.P. INDIA

T. P. Mall* and S. C. Tripathi

Postgraduate Department of Botany, Kisan PG College, Bahraich-271 801 U.P. India.

Article Received on
25 Oct 2015,

Revised on 15 Nov 2015,
Accepted on 05 Dec 2015

*Correspondence Author

Dr. T. P. Mall

Postgraduate Department
of Botany, Kisan PG
College, Bahraich-271 801
U.P. India.

ABSTRACT

Bahraich U.P., India is blessed with diversified flora of more than 1200 plant species, Tharu tribals in side as well as around the forests. The tribals have strong belief in magicotherapeutic properties of plants for treatment of their ailments. The vegetation of the areas is mainly characterized by large member of herbaceous plants growing on verity of habitats along with scattered occurrence of many indigenous and exotic species of trees and shrubs in open areas or cultivated in gardens and along rode sides. The North Western Tarai belt in which Bahraich is situated is next to North East and Western ghats which represents one of the eighteen hot spots of the World mega biodiversity. In spite

of all, the wealth of traditional knowledge is being lost, as the traditional culture is gradually disappearing. So as to document we have taken the project. *Andrographis paniculata* (Burm. f.) Wall. ex. Nees in Wall belongs to Acanthaceae is also known as *Justicea paniculata* Burm. F, *J. patibross* Russ, *J. stricta* Lam. ex Stud. Locally it is called as Kalpnath. In other parts of the country it is also known Kalmnegh, Kalupnath. This herb is extremely bitter in taste. The plant is known in north-eastern India as Maha-tita, literally king of bitters and known by various vernacular names as Chooraita, Chireita, Bhuinimba, Chireita, Kirayat, Siriya nangai, Nelabevu. In Ayurveda it is known as Kalmegh or Kalamegha, meaning "dark cloud". It is also known as Nila-Vembu, meaning "neem of the ground". though being a small annual herb, has a similar strong bitter taste as that of the large Neem tree (*Azadirachta indica*) During survey for ethnomedicinal plant, their uses, preparation medicines and made of their administration we came across certain formulations for typhoid, malaria, intermittent fever, liver ailments, nasal secretions, common cold where Kalpnath leaves are mixed with parts of other native plants. The plant is bitter, acrid, cooling, laxative, vulnerary, antipyretic, antiperiodic, anti-inflammatory, expectorant, depurative, soporific, anthelmintic, digestive

and useful in hyperdispsia, burning sensation, wounds, ulsers, chronic fever, malaria, intermittent fever, inflammations, cough, bronchitis, skin diseases, leprosy, colic, flatulence, diarrhea, dysentery, haemorrhoids etc. Kalpnath is also a reputed Homoeopathic medicine.

KEYWORDS: Kalpnath, *Andrographis paniculata*, Ethnomedicine, North Central Tarai Forests.

INTRODUCTION

Bahraich district is one of the district of Eastern Uttar Pradesh, situated in Upper Gangetic Plane. It lies between 27°43' and 28°51' North Latitude and 81°8' and 82°10', East longitude with a total area of about 6944 sq km. Botanically the area is very interesting. In north the Himalayas rise as a virtual wall beyond the snow line. Above the alluvial plain lies the Tarai strip, a seasonally marshy zone of sand and clay soils. Since this North Tarai region which has higher rain fall than the plains and the downward rushing rivers of the Himalayas slow down and spread out in the flatter Tarai zone depositing fertile silt and reproductive means during the monsoon season and receding in the dry season. Tarai, as a result has higher water level and is characterized by moist sub tropical condition and a luxuriant turnover of green vegetation all the year around.

The study area is blessed with several floras by nature and it is referred as natural paradise and it is very rich in ethnic and floristic diversity. The Tharu tribes are endowed with vast knowledge of medicinal plant and have strong belief in magicotherapeutic properties of plants for treatment of various ailments. The district is having good population of tribal people mostly Tharus and their knowledge regarding plants has descended from one generation to another as a domestic practice (Brahman, 2000). Due to vast area of natural forests the Bahraich is also known as City of Forests.

The land surface is a level tract sloping gently from North West to South East. A remarkable feature fills landscape is the total absence of any hill or hillocks. The soil is composed of Gangetic alluvium. Since much of the ground is liable inundation, the particles deposited are very fine. Bahraich enjoys monsoon type of climate, very much influenced by Himalaya being nearer to the region. The climate is markedly periodic and is divided in to three seasons i.e. rainy, winter and summer season. The general temperature range between 3°C to 43°C. The general vegetation of the area is tropical deciduous type. However, some of the trees are evergreen and semi evergreen. The forests are only restricted to Northern portion of the

district bordering up to foot hills of Nepal. The middle and southern part of the area are under the influence of human and their domestic animals. Thus the vegetation of this area is being damaged by intense grazing, fire, cutting down of plants for fodder, fuel and for various developmental projects. A vast area is also under cultivation. The vegetation of these areas is mainly characterized by large number of herbaceous plants growing on variety of habitat along with scattered occurrence of many indigenous and exotic species of trees and shrubs in open areas or cultivated in gardens and along road sides.

Plants have a significant contribution towards the wealth of a country. During recent years exploration of our plant wealth and its economic utilization have rightly been given due importance. The contribution on the economic aspects of our plants are scattered over numerous literatures. The revision of the information based on modern collection and field observation has been advocated by Rao (1958). Gupta (1967) emphasized that the information we already possess on the economic aspect of plants should be revised thoroughly based on personal enquiries and experimentations. India presents colorful mosaic of about 563 tribal communities which have acquired considerable knowledge on the use of plants for their livelihood, health care and other purposes through their long association with the forests, inheritance, practices and experiences. Plants with medicinal properties enjoyed the highest reputation in the indigenous system of medicines all over the world. India has one of the oldest, richest and most diverse cultural traditions called folk tradition associated with the use of medicinal plants. Traditional folk medicine is the application of indigenous beliefs, knowledge, skills and cultural practices concerned with human health. The ethnic people have provided several miraculous plants of medicinal value for modern civilization. Both the ayurvedic and Siddha system of medicine originated more than 300 years ago and are prevalent in North and South India (Lgnacimuthu *et al.*, 2006). The traditional definition of medicinal plant is given in Ashtasane Hrdays 2006 A.D. Sutra sihana ch 9, Vrse 10 as i.e. "There is nothing in this universe which is non medicinal which can not be used for many purposes and by many modes" (Shanker *et al.*, 2000). India represents one of the twelve mega biodiversity centers of the World, had two of the world's eighteen bio diversity hot spots. North East and Western Ghats ranks first followed by our North West Forests of Tarai region. This Tarai belt, well blessed and inhabited by tribal community in side the forest as well as around the forest area is a natural paradise for ethnobotanical, mycological, plant pathological as well as work related with wildlife alone or interdisciplinary work. World Health Organization WHO has also recognized the role of traditional system of Medicine and

consider them a part of strategy to provide health care to masses Folk medicines are gaining importance. Much of this wealth of knowledge is being lost as traditional culture is gradually disappearing (Hamilton, 1995).

Tribal people throughout the world have developed their own culture, customs, cults, religious rites, myths, folk tales and songs, foods, medicinal practices etc. Numerous wild as well as cultivated plants play a very important and vital role among these cultures and this inter relationship has evolved over generations of experience and practices (Maheswari, 1983).

MATERIALS AND METHODS

The survey of the Bahraich and Shrawasti was carried out which belongs to North Central Tarai forests during 2010-2014. Rapport was established with local elderly persons and the vaidas (Ayurvedic physicians), Hakims of the locality as well as Tharu tribes of the surveyed area. Inquiries were made on the Plant material used for curing different ailments. Elderly men and women folk were interviewed by questionnaire method, resulting in heterogeneity of information. Participation in their feasts, festivals and other social events etc was of great use in collecting information on Kalpnath and their use. The plant was collected in flowering and fruiting stage. It was identified by authentic literatures and floras viz Hooker, 1872-1997; Sharma *et al.*, 1993 a,b, Dubey, 2004 and Saini, 2006. The herbarium of flora was prepared according to the method described Jain and Rao, 1976; Rao 1958 and deposited in Herbarium of the Department for the record and reference.

RESULT AND DISCUSSION

Andrographis paniculata (Burm. f.) Wall. ex. Nees in Wall belongs to Plantae, Angiosperms, Eudicots, Asterids, Lamiales, Acanthaceae is also known as *Justicea paniculata* Burm. F. *J. patibross* Russ, *J. stricta* Lam. ex Stud. It is an erect, glabrous, annual herb, upto 1 m high; Stem 4-angled, Leaves 4-10 x 1-2 cm sub sessile, lanceolate, linears lanceolate, entire, acute, base acute, dark green above, pale beneath. Flowers white with purple spots on lower lip in terminal and axillary panicles. Capsules 1.5-2.5 x 0.3 - 0.5 cm, tapering to the ends, glabrous. Seeds 6-18, oblong or rounded. Common on the waste land along the road rides and railway-lines. Phenology September-December. Locally it is called as Kalpnath. In other parts of country it is also known Kalmnagh, Kalupnath. This herb is extremely bitter in taste. The plant is known in north-eastern India as Maha-tita, literally king of bitters and known by various vernacular names as Chooraita, Chireita, Bhuinimba, Chireita, Kirayat, Siriya nangai,

Nelabevu. In Ayurveda it is known as Kalmegh or Kalamegha, meaning "dark cloud". It is also known as Nila-Vembu, meaning "neem of the ground". though being a small annual herb, has a similar strong bitter taste as that of the large Neem tree (*Azadirachta indica*) In Malaysia, it is known as Hemptedu Bumi, which literally means "bile of earth" since it is one of the most bitter plant that are used in traditional medicine.

A paniculata is distributed in tropical Asian countries often is isolated patches. It can be found in a variety of habitats, such as plains, hillsides, coastlines, disturbed and cultivated areas. Unlike other species of the genus, *A. paniculata* is of common occurrence is most places in India, including plains and hilly areas up to 500 m. which accounts for its wide ethnomedicinal use. For cultivation purpose sunny location is best. The seeds are sown during May and June. The seedlings are transplanted at a distance of 60x30 cm. During our survey for ethnomedicinal plant, their uses, preparation medicines and made of their administration we came across certain formulations for typhoid, malaria, intermittent fever, liver ailments, nasal secretions, common cold where Kalpnath leaves are mixed with parts of other native plants.

Andrographis paniculata Kalpnath – Leaves.

Leucas aspera Gumma – Leaves.

Eclipta prostrata Bhangria – Leaves.

Fifty gm leaves each of all the above plants are taken and made in to paste along with pinch of black salt and five gm of black pepper. The paste is made into pea size tablets. It is dried in shade. Two to three tablets are taken with empty stomach two to three times daily, depending upon the severity of the ailments.

Four Kalpnath leaves are made into paste with four black piper. It is taken twice along with water and empty stomach.

Four leaves of kalpnath, inner part of four fruits of Kanga *Pongamia pinnata* and four number of black pepper is made in to paste and taken twice daily with empty stomach till cure or instead of taking the paste all the ingredients are boiled with mild flame so as to prepare decoration. On cooling preferably warm decoration is taken twice with empty stomach along with water.

Four leaves of kalpnath along with four black piper are chewed and engulfed with water daily in morning with empty stomach so as to increase the immune system.

The fresh leaves are collected and dried in shade so as to use them when the fresh leaves or plants are not available. Though the whole plant is effective but the leaves have significant role in the medicine as compared to other parts of the plant.

The review of available literatures reveals that the chemical constituents are 14-Deoxy-11-dehydroandrographolide, 14-Deoxy-11-oxoandrographolide, 5-Hydroxy-7,8,2,3-Tetramethoxyflavone, Andrographolide, Neoandrographolide, Paniculide-A Paniculide-B and Paniculide-C in plant where as 5-Hydroxy-7,8,2-Trimethoxyflavone in tissue culture and Andrographine in root. *A. paniculata* is being used in traditional Siddha and Ayurvedic systems of medicine as well as in tribal medicine in India and some other countries for multiple clinical applications since ancient times. According to Ayurveda the plant is bitter, acrid, cooling, laxative, vulnerary, antipyretic, antiperiodic, anti-inflammatory, expectorant, depurative, soporific, anthelmintic, digestive and useful in hyperdispsia, burning sensation, wounds, ulcers, chronic fever, malaria, intermittent fever, inflammations, cough, bronchitis, skin diseases, leprosy, colic, flatulence, diarrhea, dysentery, haemorrhoids etc. Kalpnath is also a reputed Homoeopathic medicine. In Bengal (India), household medicine known as “Alui” is prepared from fresh leaves and is given to children suffering from stomach complaints. Recent experimental findings indicated that kalpnath is having antityphoid and antibiotic properties. It has been proved to be hepato protective medicine (Oudhia, 2015).

Kalpnath has been used for liver complaints and fever and as an anti-inflammatory and immunostimulant. In clinical trials, *Andrographis* extract has been studied for use as an immunostimulant in upper respiratory tract and HIV infection. The potential of andrographolide as an anticancer agent is being investigated. The usual daily dose of andrographolides for common cold, sinusitis and tonsillitis is 60 mg. Doses of 10 mg/kg resulted in the discontinuation of a clinical trial because of adverse reactions. Clinical trials in children with upper respiratory tract infection reported the use of andrographolide 30 mg. daily for 10 days. During pregnancy and lactation the use of *Andrographis* is not recommended because it may be an abortifacient (Drugs.com.)

CONCLUSION

The rural and tribal repository of the studied area contains many medicines for the treatment of various ailments. It is hoped that this effort will not only provide additional support to the earlier findings, but also provide clues for new materials having traditional potentiality for the benefits of mankind.

ACKNOWLEDGEMENTS

The authors are thankful to all the local knowledge holders who helped in one way or the other. The thanks are also due to The Principal Kisan P.G. College, Bahraich for his permission to work out this project and facilities. The Chief Wildlife Warden, U.P. Govt, Lucknow for due permission and facilities. Dr. D.C. Saini Scientist grade F. Birbal Sahni Paleobotany Research Institute, Lucknow for identification of certain plants and encouragements.

REFERENCES

1. Brahaman M, Some Ethnomedicinal plants of Akola and Sanganer talukes of Ahmadnagar. *J. Indian Bot. Soc.*, 2000; 81: 213-215.
2. Dubey NK, Flora of BHU Campus, Printed and Published by BHU Publication Cell, 2004: 1-180.
3. Drugs.com Herbal Database Andrographis Uses, Benefits & Doses <http://www.drugs/npp/andrographis.html>.
4. Gupta R, Seasonal Flowers of the Indian Summer Resorts, Mussoorie Hills, New Delhi, 1967.
5. Hamilton A, The people and Plants initiative, In: *Ethnobotany: Methods and Manual* by GJ Martin, WWW international, Chapman and Hall, London, 1995; 10-11.
6. Hooker JD. (1872-1897) *The Flora of British India*, Vol 1-7(London).
7. Ignacimuthu S, Ayyangar M, Shanker SK, Ehhnobotanical investigations among tribes in Madurai district of Tammil Nandu (India). *J. Ethnobiol Ethnomedi*, 2006; 2: 25.
8. Jain SK, Rao RR, *Hand Book of field and Herbarium methods*, Today and Tomorrow Printers and Publishers New Delhi, 1976; 33-58.
9. Maheswari JK. Developments in Ethnobotany. *J. Econ, Tax. Bot*, 1983; 4(1): 1-5.
10. Oudhia, Pnakaj, Bhuinimb or Kalmegh (*Andrographis paniculata* Nees.) 2015.
11. <https://hort.purdue.edu/newcrop/CropFactSheet/andrographis.html>.

12. Prakash JW, Raja RDA, Anderson NA, Williams C, Regini Bemsar K, Rajeev R, Kiruba S, Jeeva S, Das SSM, Ethnomedicinal plants used by Kani tribes of Agasthiyar malai biosphere reserve, Southern Western Ghats, Indian Journal of Taraditional Knowledge, 2008; 7(3): 410-413.
13. Rao RS, History and Importance of Indian herbaria. Jour, Ind. Bot. Soc., 1958; 3: 152-159.
14. Saini DC, Flora of Bahraich District, Uttar Pradesh-J Eco Taxon Bot., 2005; 29(V): 843-886.
15. Shanker D, Ved DK Geeta VG, A Green Pharmacy Indian Health Traditions, The Hindu Special issue with the Sunday Magazine, 2000; 1-2.
16. Sharma BD, Balkrishnam NP, Sanjappa M, Flora of India Vol 11 BSI Calcutta Deep Printers New Delhi, 1993.
17. Sharma BD, Samjappa M, With assistance from Bal Krishnan NP Ed Flora of India Vol 3 BSI, Calcutta Deep Printers New Delhi, 1993.