WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.453
Volume 14, Issue 21, 1707-1716. Research Article ISSN 2277–7105

DIVERSITY OF FEVER DISEASE IN TARAI REGION OF UTTAR PRADESH, INDIA

Vinay Kumar Prajapati[1]*, M. P. V. Vikram Singh[2], Santosh Kumar[3], Rahul[4]

[1]*Department of Botany, M. B. P. Govt. P. G. College, Lucknow, UP-India- 226012.

[2]Department of Botany, Shri Jai Narain Mishra P.G. College, Lucknow, UP-India-226001.

[3]Department of Botany, M. B. P. Govt. P. G. College, Lucknow, UP-India- 226012.

[4]Department of Botany, M. B. P. Govt. P. G. College, Lucknow, UP-India- 226012.

Article Received on 11 Oct. 2025,
Article Revised on 31 October 2025,
Article Published on 01 Nov. 2025,

https://doi.org/10.5281/zenodo.17541440

***Corresponding Author**

Vinay Kumar Prajapati

Department of Botany, M. B. P. Govt. P. G. College, Lucknow, UP-India-226012.

How to cite this Article: Vinay Kumar Prajapati, M. P. V. Vikram Singh, Santosh Kumar, Rahul. (2025). Diversity Of Fever Disease In Tarai Region Of Uttar Pradesh, India World Journal of Pharmaceutical Research, 14(21), 1707–1716.

ABSTRACT

Ethnobotany is the study of how people of a particular culture and region make use of indigenous floras. Plants have been used for treatment of different diseases for thousands of years and grabbed the important place in health industry. In tribal areas of Tarai region, tribes are mostly dependent on plants for food, shelter and medicines. In Tarai regions of Uttar Pradesh, mostly people are infected with different types of fever as dengue, malaria, viral fever, typhoid, chikungunya, intrinsic fever, encephalitis etc., and they are used plants as medicine nearby forest areas. Folk medicines are intensified nowadays; local people collected these plants and used as medicine. Tribes for to make the healthcare system strong and for treating to the various diseases, uses the plants as medicines. The present paper is provided the status of different fever conditions and a comparison to other diseases in Bahraich and also associated area Balrampur and Shravasti district of Tarai region, Uttar Pradesh, India, along with suitable photographs and illustrations.

KEYWORDS: Ethnobotany, different fever condition, data comparison, Tarai region, Uttar Pradesh.

INTRODUCTION

The Tarai regions of Uttar Pradesh are located in the foothills of the Himalayas. Tarai, is a lowland belt of flat, alluvial land stretching along the Nepal-India border and running parallel to the lower ranges of the Himalayas extending from the Yamuna River in the west to the Brahmaputra River in the east. This region plays a crucial role in maintaining the biodiversity and ecological balance of the state, and the wildlife sanctuaries in the tarai region are vital in conserving these valuable natural resources.

The tarai regions are marshy, swampy and low land and have very rich biodiversity, wetland, and dense forests. It is situated at an average elevation of 100 – 500 meters above sea level and covers an area about 40,000 square kilometres. The climate of the tarai region is humid subtropical, and temperature ranging from 10˚C to 31˚C throughout the year. The regions have monsoon season, with heavy rainfall occurring between June and September. The region serves as several national parks and wildlife sanctuaries, including Chitwan National Prak in Napal and Dudhwa National Park in Uttar Pradesh.

Vegetation of the Tarai regions is tropical moist deciduous forest, and annual rainfall about 100 to 150 cm. It consists of various proportions of sand, silt and slays soil. It can be classified as old alluvial (Bhangar) and new alluvial soil (Khadar).

Bahraich district is situated in north eastern part of Devipatan division. It is situated between the 28.24 to 27.4 latitude and 81.65 to 81.3 eastern longitudes. The area of district is 4696.8 sq km. This is 31.99% of Devipatan division. District Bahraich has an international border with Nepal on the northern part district. Barabanki and Sitapur are in south, Lakhimpur Khiri in west and Gonda and Shrawasti are in eastern side of the district Bahraich.

Balrampur district is situated on the banks of river Rapti. The district was created on 25th May 1997 by division of Gonda District. It shares its north and northeast border with Nepal. The rest of Balrampur is surrounded by Uttar Pradesh: on the east by Siddharth Nagar District, Basti to its southeast, Gonda to south and southwest and Shravasti to the west. In the north of the district is situated the Shivalik ranges of the Himalayas which is called Tarai region. It covers the area 3457 sq. km. It is lies between 27°43' N latitude and 82°18' E longitude.

Shravasti district is in the north western part of Uttar Pradesh covering an area of 1858.20 Sq. Km. It is a created district carved out from Bahraich district. Shravasti, which is closely, associated with the life of Lord Buddha, shares border with Balrampur, Gonda & Bahraich districts. It is lies between 27˚30'19.3644" N latitude and 82˚2'9.5568" E longitude.

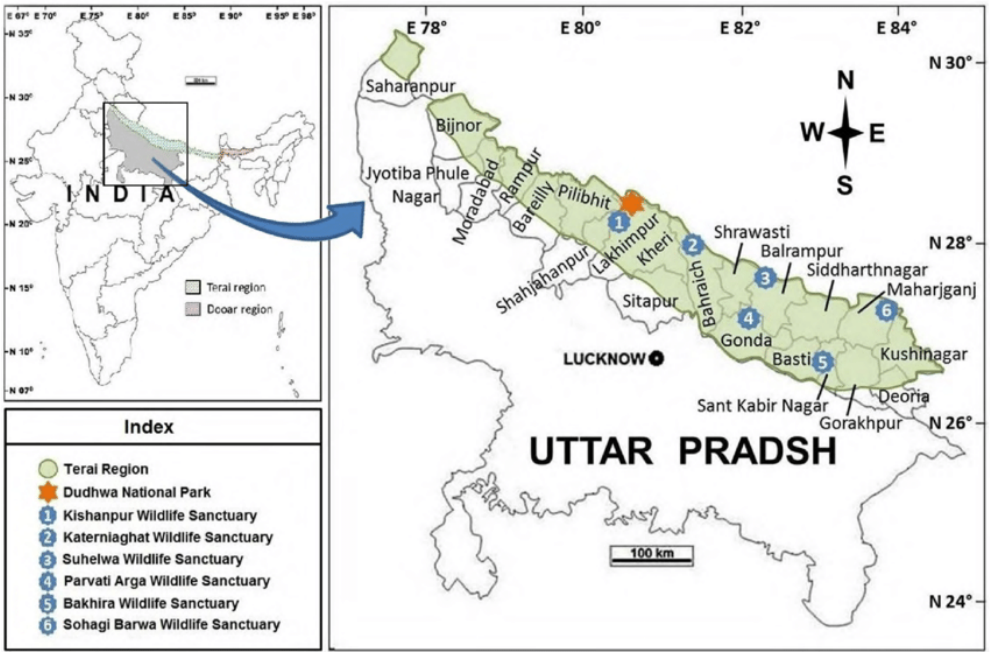


Fig. 1: MAP- Showing study area of the Uttar Pradesh.

Review of literature

Allopathic drugs have brought a revolution throughout the world but the plant-based medicines have its own unique status. Nearly 80% of the world population depends upon traditional system of health care (WHO, 1993; Ishtiaq *et al*., 2006b; Hamayun *et al*., 2006; Kumar and Chandrasekhar, 2011). It is well known that this system offers minimal side effects and relatively low cost as compared to other systems of medicine. Human communities have developed knowledge and practices by trial and errors experimentations (Siddique *et al*., 2004) and by intuitive methods etc., leading to unique creation known as Traditional Knowledge (TK). In recent times, many important medicinal plants are being depleted very swiftly due to unscientific exploitation, natural calamities road construction, uprooting, cutting and overgrazing ignorantly or determinately which may lead towards complete extinction of some of these species (Ishtiaq *et al*., 2006a; Kumar *et al*., 2011; Prakash *et al*., 2011) and the growing bio-piracy and misappropriation of Traditional Knowledge, held by the various communities especially of the developing world, have raised concerns for a new system of legal protection of traditional Knowledge.

The Terai region is one of the highly divers and rich eco-regions of India (Bajpai *et al*., 2012,). The region spreads along the foothills of the central Himalaya in the north of Indo-Gangetic plain (Uttarakhand, Uttar Pradesh and Bihar). It is ethnobotanically rich region due to the presence of 'Tharu' tribal communities since long back (Singh et al., 2012). The population census 2011 reveals about 1,69,209 people in Tharu communities in the country, of which about 50% live in Uttar Pradesh alone, with majority in Maharajganj, Gorakhpur, Siddharthnagar, Balrampur, Shravasti, Baharaich and Lakhimpur-Kheri districts. Recent studes indicate that Tharu population is suffering from rapid cultural degradation due to changing socio-economic conditions (Hamilton, 1995; Kumar *et al.*, 2006; Singh *et al*., 2012). Thus, there is an urgent need to collect and record the ethnobotanical information from this region before these being vanished completely (Kumar *et al*., 2006; Ong *et al*., 2011). A literature survey reveals that in the Himalayan Terai region of Uttar Pradesh, most of the scattered ethnobotanical studies so far have been concentrated in the eastern (Singh et al., 1987; Singh and Maheshwari, 1992; Kumar *et al*., 2006, 2012, 2013) and western regions (Singh *et al*., 1979; Maheshwari *et al*., 1981; Maliya, 2011; Mohammad *et al*., 2011; Kumar *et al*., 2013).

MATERIALS AND METHODS

During an extensive survey we visited of different Prathamic Swasthya Kendra (PSC) and Community Health Center (CHC) of Tulsipur, Gansari, Pachpedwa of Balrampur district, and PSC and CHC of Bhinga, Ikauna of Shravasti district and PSC and CHC of Bahraich district. The data on different kinds of fever such as AES (Acute Encephalitis Syndrome), JE (Japanese Encephalitis), Dengue, Typhoid, Viral fever, Chikunhunya, Malaria, Scrub fever, Typhus fever and Kala Azar in the tarai regions were collected by PSC and CHC. Typhoid, intrinsic fever and viral fever are the most dominant in the tarai region of Uttar Pradesh.

After collecting data on different types of fever from PSC and CHC of Balrampur, Shravasti and Bahraich districts, we also visited to the CMO (Chief Medical Officer) office for cross-verification of the related data. The CMO office provided data of different kinds of fever from collected from PSC and CHC of these districts, a comparison of the data showed almost the same results. With the help of various research papers related to different kinds of fever and different types of folk medicine books, we comparing the data and found same related data.

Meeting with different tribal community members, local inhabitant, local vaidyas, homeopathic doctors, pathological labs and Tharu Vikas Pariyojna center authority members, we also collected different types of fever data.

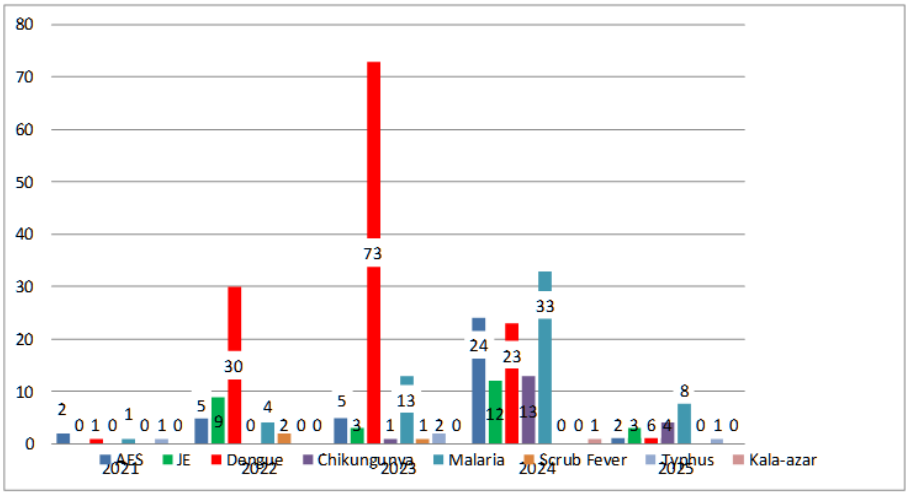
RESULT

An extensive survey of the study area revealed two types of fever; vector-born fever, and common fever such as viral fever, cold, and intrinsic fever, etc. In the Bahraich district, dengue is the most dominant, followed by malaria and viral fever, etc. Some vector born fevers observed in the Bahraich district are listed below **(Table: 1 & Fig.:1),** Balrampur district **(Table: 2 & Fig.:2), and** Shravasti district **(Table: 3 & Fig.:3) -**

Table 1: Status of different types fever in Bahraich district, Uttar Pradesh.

Year	AES		JE		DENGUE		CHIKUN GUNYA		MALA RIA		SCRUB		TYPHUS		KALA-AZAR	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Pv	Pf	Cases	Death	Cases	Death	Cases	Death
2021	2	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
2022	5	1	9	0	30	2	0	0	4	0	2	0	0	0	0	0
2023	5	0	3	0	73	0	1	0	13	0	1	0	2	0	1	0
2024	24	0	12	0	23	0	13	0	33	0	0	0	0	0	1	0
2025	2	0	3	0	6	0	4	0	8	0	0	0	1	0	2	0

Abbrevations- AES (Acute Encephalitis Syndrome), **JE** (Japanese Encephalitis), **Pv** (Plasmodium vivex), **Pf (**Plasmodium falciparum)



Fig, 1: Status of different types fever in Bahraich district, Uttar Pradesh.

Abbrevations- AES (Acute Encephalitis Syndrome), **JE** (Japanese Encephalitis), **Pv** (Plasmodium vivex), **Pf (**Plasmodium falciparum)

In the year 2022 and 2023, dengue fever was most dominant in the Bahraich district, causing 73 cases and no death. In the year 2024 and 2025, malaria fever was most dominant in this district, causing 33 cases with no deaths.

Table 2: Status of different types fever in Balrampur district, Uttar Pradesh.

Year	AES		JE		DENGUE		CHIKUNGUNYA		MALARIA		SCRUB		TYPHUS		KALA-AZAR	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Pv	Pf	Cases	Death	Cases	Death	Cases	Death
2022	19	0	5	1	10	0	0	0	1	0	1	0	1	0	1	0
2023	11	0	5	0	12	0	0	0	13	0	0	0	4	0	0	0
2024	5	0	4	0	19	0	1	0	10	0	2	0	3	0	1	0
2025	3	0	3	0	4	0	0	0	4	0	1	0	2	0	0	0

Abbrevations- AES (Acute Encephalitis Syndrome), **JE** (Japanese Encephalitis), **Pv** (Plasmodium vivex), **Pf (**Plasmodium falciparum)

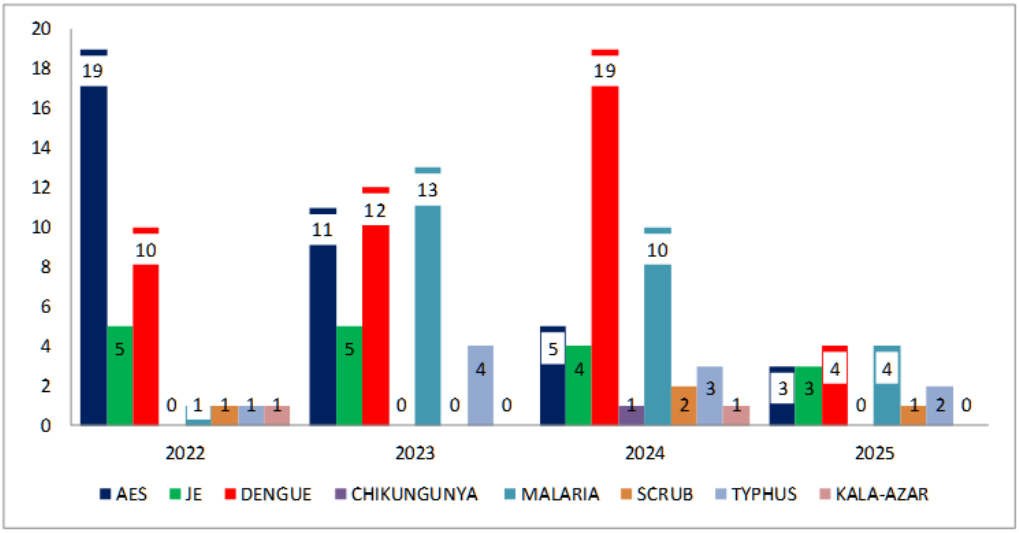


Fig. 2: Different types of fever in Balrampur district.

Abbrevations- AES (Acute Encephalitis Syndrome), **JE** (Japanese Encephalitis), **Pv** (Plasmodium vivex), **Pf (**Plasmodium falciparum)

In the year 2022 and 2024, dengue fever was most dominant in the Balrampur district, causing 41 cases and 1 death. In the year 2023 and 2025, malaria fever was most dominant in this district, causing 27 cases with no deaths.

Table 3: Status of different types fever in Shravasti district, Uttar Pradesh.

Year	AES		JE		DENGUE		CHIKUNGUNYA		MALARIA		SCRUB		TYPHUS		KALA-AZAR	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Pv	Pf	Cases	Death	Cases	Death	Cases	Death
2021	1	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0
2022	6	1	5	0	32	1	0	0	8	0	3	0	0	0	0	0
2023	4	0	7	0	78	0	3	0	15	0	2	0	2	0	1	0
2024	20	0	15	0	25	0	16	0	38	0	0	0	0	0	1	0
2025	3	0	2	0	10	0	3	0	7	0	0	0	0	0	0	0

Abbrevations- AES (Acute Encephalitis Syndrome), **JE** (Japanese Encephalitis), **Pv** (Plasmodium vivex), **Pf (**Plasmodium falciparum)

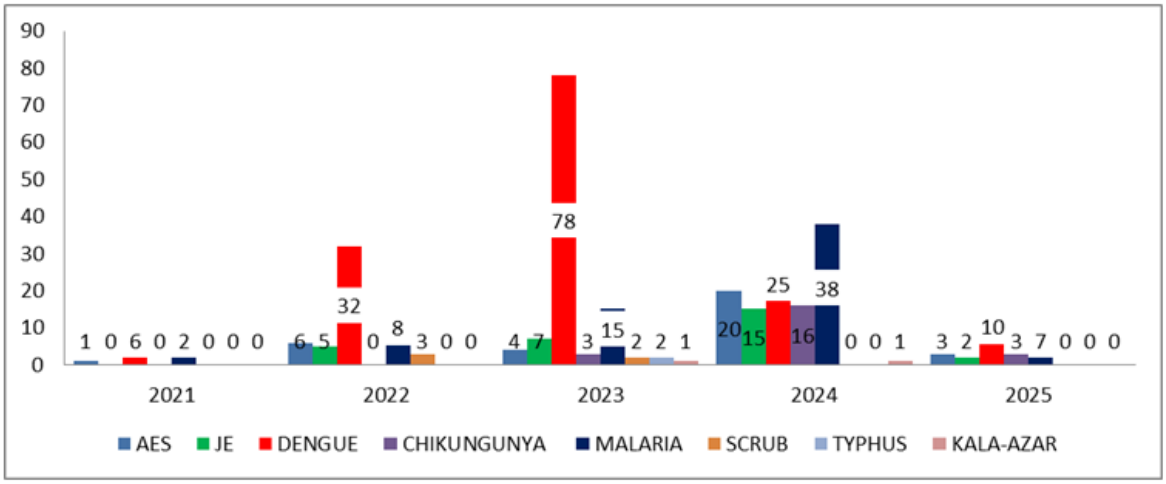


Fig. 3: Status of different types fever in Shravasti district.

Abbrevations- AES (Acute Encephalitis Syndrome), **JE** (Japanese Encephalitis), (Plasmodium vivex), **Pf (**Plasmodium falciparum).

In the year 2022 and 2023, dengue fever was most dominant in the Shravasti district, causing 133 cases and no death. In the year 2024 and 2025, malaria fever was most dominant in this district, causing 41 cases with no deaths.

DISCUSSION

Local traditional medicinal knowledge is typically passed down from older tribal people of the study area. The fact that traditional healers typically prefer to impart their knowledge of local medicinal plants to other men might account for the study area's high proportion of male informants. Similar finding on the predominance of local people was also found in Balrampur, Bahraich and Shravasti districts.

Although the present study highlighted the various diseases with special emphasis on different fever condition, and the study area has diverse flora and rich traditional knowledge, which used in the management of various ailments. The utilization of medicinal plants as their primary healthcare source from the wild has been reported from the Tarai region. The local people of the study area mainly rely on natural vegetation for medicinal plants, revealing that the practice of planting or cultivating medicinal plants is lacking. Therefore, overexploitation of natural vegetation may pose a serious threat in the study areas.

The present study was conducted covering the entire Terai region of the state to collect ethnomedical knowledge exclusively about the tree species being considered among the most valuable life forms in the region.

ACKNOWLEDGEMENTS

The authors are thankful to the Director, Council of Science and Technology (CST), Uttar Pradesh, for funding this project. Also thankful to the Department of forest, Government of India, for the necessary permits to carry out field work in protected areas. Sincere gratitude to the CMO and forest staff for their kind support during field work and studies.

(Project funded by Council of Science and Technology (CST), Uttar Pradesh, India)

Funding details

Grant Number: **CST/ AAS/0-876 Date: 13 August, 2024**

Funder: **Council of Science and Technology, U.P.**

REFERENCES

1. Bajpai, O., A. Kumar, A. K. Mishra, N. Sahu, J. Pandey, S. K. Behera and L. B. Chaudhary, Recongregation of tree species of Katerniaghat wildlife sanctuary, Uttar Pradesh, *India. J. Biodivers. Environ. Sci.*, 2012; 2: 24-40.
2. Hamayun, M., S. A. Khan, H. Kim, C. I. Na and I. Lee, Traditional knowledge and ex situ conservation of some threatened medicinal plants of Swat Kohistan, Pakistan. *Int. J. Bot*., 2006; 2: 205-209.
3. Hamilton, A., The People and Plants Initiative. In: Ethnobotany: A Methods Manual, Martin, G. J. (Ed.). WWF International, Chapman and Hall, *London*, UK., ISBN-1995; 13: 9780412483707: 10-11.

4. Ishtiaq, C. M., M. A. Khan and W. Hanif, Ethno veterinary medicinal uses of plants from Samahni valley dist. Bhimber, (Azad Kashmir) Pakistan. *Asian J. Plant Sci.*, 2006b; 5: 390-396.
5. Ishtiaq, C. M., M. A. Khan and W. Hanif, An ethnomedicinal inventory of plants used for family planning and sex diseases treatment in Samahni valley, (A.K.) Pakistan. *Pak. J. Biol. Sci*., 2006a; 9: 2546-2555.
6. Jain, S. K., Dictionary of Indian Folk Medicine and Ethnobotany. *Deep Publications*, New Delhi, 1991.
7. Kumar, A., Ethnobotanical study of wild vegetables used by rural communities of Kannauj district, Uttar Pradesh, India. *Emir. J. Food Agric*., 2013; 25: 760-766.
8. Kumar, A., D. D. Tewari and J. P. Tewari, Ethnomedicinal knowledge among Tharu tribe of Devipatan division. *Indian J. Tradit. Knowle*., 2006; 5: 310-313.
9. Kumar, A., V. C. Pandey and D. D. Tewari, Documentation and determination of consensus about phytotherapeutic veterinary practices among the Tharu tribal community of Uttar Pradesh, India. *Trop. Anim. Health Prod.*, 2012; 44: 863-872.
10. Kumar, G. P. R. Kumar and O. P. Chaurasia, Conservation status of medicinal plants in Lasakh: Cold arid zone of Trans-Himalayas. *Res. J. Med. Plant*, 2011; 5: 685-694.
11. Kumar, T. and K. S. Chandrashekar, Bauhenia purpurea Linn. A review of its ethnobotany, phytochemical and pharmacological profile. *Res. J. Med. Plant*, 2011; 5: 420-431.
12. Maheshwari, J. K., K. K. Singh and S. Saha, The Ethnobotany of the Tharus of Kheri District, Uttar Pradesh. *National Botanical Research Institute*, Lucknow, India, 1981; 48.
13. Maliya, S. D., Ethnobotanical significance of flora of Katerniaghat wildlife sanctuary, district Bahraich, Uttar Pradesh. *J. Econ. Taxon. Bot*., 2011; 35: 39-55.
14. Mohammad, I., V. Malik and Pranitta, Enumeration of ethnomedicinal plants of Shakumbari Devi region of district Saharanpur (U.P.). *J. Econ. Taxon. Bot*., 2011; 35: 837-845.
15. Ong, H. C., N. Ahmad and P. Milow, Traditional medicinal plants used by the Temuan villagers in Kampung Tering, Negeri Sembilan, Malaysia. *Ethno. Med*., 2011; 5: 169-173.
16. Prakash, V., H. Bisht and M. C. Nautiyal, Seed germination in high altitude medicinal plants of Garhawal Himalaya by some pre-sowing treatments. *Res. J. Seed Sci.*, 2011; 46: 19-205.

17. Singh, A. A., A. Kumar and D. D. Tewari, An ethnobotanical survey of medicinal plants used in Terai forest of Western Nepal. *J. Ethnobiol. Ethnomed.*, 2012; 8: 10.1186/1746-4269-8-19.
18. Singh, A. K., R. N. Singh and S. K. Singh, Some ethnobotanical plants of Tarai region of Gorakhpur district-I. *J. Econ. Tax. Bot.*, 1987; 9: 407-410.
19. Singh, K. K. and J. K. Maheshwari, Folk medicinal uses of some plants among the Tharus of Gorakhpur district, Uttar Pradesh, India. *Ethnobotany*, 1992; 4: 39-43.
20. Singh, K. K., H. S. Bhati and J. K. Maheshwari, Survey and Biological activity of economic plants of Kheri forests, Uttar Pradesh. *Indian For.*, 1979; 105: 534-545.
21. WHO, Research Guideline for Evaluating the Safety and Efficacy of Herbal Medicines. *World Health Organization*, Manila, Philippines, 1993; 2.