Abstract: Ethno-botany is the study of the relationship between human beings and plants. Most commonly it refers to the study of indigenous uses of plants that have been proved beneficial both for the prevention as well as cure of various human diseases. The medicinal properties lie in plant roots, stems, leaves, flowers, fruits, seeds and sometimes an entire plant is used to cure various ailments like anemia, jaundice, smallpox, leprosy, antiseptic, cough, skin disease, cancer, piles, diarrhea, diuretic, low blood pressure, dysentery, headache, diabetes, asthma, toothache, purify blood, fever, madness, disorders, ulcer and others. This review emphasizes on the use of ethno-medicinal plants specifically by tribes of Uttar Pradesh.

Keywords: Diseases, Medicinal plants, Parts used, Tribal people, Uttar Pradesh.

INTRODUCTION
Bio resources and humans have intimate relationship since past and depend upon each other for existence. World Health Organization (WHO) defines this traditional or folk medicine as 'the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness' (Prakash and Verma, 2021). In Indian subcontinent, the plants have played crucial role in the socio-cultural development of human species concurrently in different parts of human civilization and exerted larger impact because of varied climatic conditions and diversified socioeconomic conditions (Pandey, 2019).

The traditional medicine is not only a source of healing, but the practice is also an important part of their religion and culture. So far as modern medicine is concerned, it is reported that more than half of the world's modern drugs are of biological sources (Prakash and Prakash, 2021).

The knowledge, which is mostly undocumented, is transmitted orally from generation to generation thereby restricted to a particular practicing family, tribe, or section of society, which has led them to the verge of extinction. Since due to various reasons, both natural resources and tribal culture are depleting at an alarming rate, therefore, there is an urgent need to explore and document this unique and indigenous knowledge before it is lost forever (Prakash and Yadav, 2020).
According to Sharma and Sharma (2014), over 95,000 wild species of plants are used by tribals for their requirements as food, medicine, fodder, fiber, gums, resins, dyes, perfumes and other purposes. A number of natural products have been used as lead compounds because of specific activity and low toxicity (Sanda et al., 2011). *Boerhaavia diffusa* has a long history of uses by indigenous and tribal people and in Ayurvedic or natural herbal medicines (Dher et al., 1968). *B. diffusa* root extract strengthens tones and balances the liver (Rawat et al., 1997). *Catharanthus roseus* has been used to treat several diseases such as diabetes (Swanston-Flatt et al., 1989), high blood pressure, asthma, constipation, and menstrual problem (Das and Sharangi, 2017). Babita and Solanki (2021) explained the benefits of *Prosopis cineraria*. Traditional knowledge of plants always played a key role in health management of any country (Singh and Kumari, 2019). Nearly 80% of the world population depends upon traditional system of healthcare (WHO, 1993; Hamayun et al., 2006; Kumar and Chandrashekar, 2011). More than 8000 plant species are documented as medicinal plants and are used by various rich heritage of knowledge on plant based drugs both for use in preventive and curative medicines (Singh and Singh, 2009). Hotwani and Mukharjee (2005) studied the medicinal plants of Burdwan, West-Bengal, India and identified 100 species of medicinal plants belonging to 64 families and 114 genera growing in different parts of Burdwan district. Jain et al. (2006) reviewed the medicinal flora of Madhya Pradesh and Chattisgarh. During floristic survey by Mishra and Pareek (2015), a total of 133 species representing 99 genera distributed in 46 families were recorded from Kota district of Rajasthan. Out of those species most of the species represent antioxidant, antibacterial, anti-inflammatory, antiulcer and many species also used to cure various diseases such as diarrhea, bronchitis, arthritis, kidney stone, urinary and skin disorders etc.

**ETHNO-MEDICINAL PLANTS OF UTTAR PRADESH**

Now days, keen emphasis is being laid on the traditional knowledge regarding application of bio resources in the indigenous healing practices by tribal / ethnic people since ancient time (Prakash, 2017). Human beings have been using plants since long. Research workers are bringing to light additional information on the relationship between plants and man. Humans vital interest in plant is because of its primarily use as a source of food, shelter and clothing dates back to the origin of human civilization (Sharma and Pareek, 2021).

As far as Uttar Pradesh is concerned, its climate is favorable for diversity of medicinal plants. The average temperature that varies in the plains from 3 to 4°C in January; 43-45°C in May and June with three distinct seasons-winter from October to February, summer from March to mid-June and the rainy season from June to September and the tropical monsoon season, the rainfall in the plains is heaviest in the east and decreases towards the north-west, that makes this land rich zone of different medicinal plants.

Mishra et al. (2012) studied on ethno-medicinal plants used to cure different diseases by rural folks and tribes of North Eastern Tarai districts of Uttar Pradesh and he reported 68 plant species belonging to 41 families, among them 15 plant species were effective against Jaundice and piles. The people of village Lakshmanpura, district Jhansi (U.P.) normally use 12 plant species to cure various diseases. The leaves are used most frequently to cure wounds and they applied mostly on the external surface of the body (Rahul, 2013). Verma et al. (2007) highlighted the study of medicinal plants in an urban environment of Varanasi, Uttar Pradesh and reported that the traditional uses of 72 plant species by local inhabitants. A sum of 42 plant species were used for the treatment of various skin diseases by local folks in and around Pilibhit tiger reserve of Uttar Pradesh (Singh and Khare, 2020). Some indigenous plants act as anticancer agents (Prakash and Upadhyay, 2021).

Now day's importance of immunity booster plants and their products are continuously being enhanced since first wave of COVID-19, which has now been declared pandemic (Kumari and Shukla, 2020; Verma and Prakash, 2020). *Adina cordifolia*, *Azadirachta indica*, *Curcuma longa* and so many plants are used by rural and urban people to enhance the immunity in order to get
protection from COVID-19 pandemic. Author explored and collected the information about a large number of plants having ethno-medicinal properties throughout the Uttar Pradesh, but only some of them are given in table 1.

| S.N. | Botanical Name                        | Common Name | Family         | Part(s) used  | Application                                |
|------|---------------------------------------|-------------|----------------|---------------|--------------------------------------------|
| 1    | Abutilon indicum L.                   | Kanghi      | Malvaceae      | Seeds, Root, Leaf | Cough, Dysentery, Fever, Leprosy, Toothache and Ulcer |
| 2    | Acacia concinna (Willd.) DC.          | Shikakai    | Fabaceae       | Leaf, Bark, Fruit | Dandruff                                  |
| 3    | Abrus precartorius L.                 | Kaincha     | Fabaceae       | Seed          | Asthma                                    |
| 4    | Achyranthes aspera L.                 | Latjeera    | Achyranthaceae | Root, Leaf    | Ringworm, Pimples                         |
| 5    | Acorus calamus L.                     | Safed banch | Acoraceae      | Rhizome       | Cough, Diphtheria, Jaundice, Low B.P.      |
| 6    | Adhatoda vasica Nees.                | Adus        | Acanthaceae    | Flower, Leaf  | Fever, Worm dysentery, Itching            |
| 7    | Ageratum conyzoides L.                | White weed  | Asteraceae     | Leaf          | Allergic rhinitis                         |
| 8    | Aloe barbadensis Miller               | Ghikanvar   | Liliaceae      | Leaf          | Purgative                                 |
| 9    | Amaranthus tricolor L.                | Tampal      | Amaranthaceae  | Leaf          | Inflammation, Diuresis                    |
| 10   | Andrographis paniculata (Burm.F) Nees | Kalmegh     | Acanthaceae    | Leaf, Root    | Fever, Worm dysentery, Itching            |
| 11   | Annona squamosa L.                    | Sitphal     | Annonaceae     | Leaf          | Eczema                                    |
| 12   | Argemone mexicana L.                  | Pili Kateli | Papaveraceae   | Root, Latex   | Wound, Leprosy                            |
| 13   | Aristolochia indica L.                | Indian bertheort | Aristolochiaceae | Leaf, Root  | Fever, Gastric stimulant                  |
| 14   | Asparagus racemosus Willd.            | Satavar     | Liliaceae      | Root          | Cough, Diarrhea, Anxiety, Dyspepsia        |
| 15   | Azadirachta indica L.                 | Neem        | Meliaceae      | Bark, Leaf    | Wound, Pimples, Leprosy                   |
| 16   | Bacopa monnieri L.                    | Brahmi      | Plantaginaceae | Whole plant parts | Leprosy                               |
| 17   | Baubinia variegata L.                 | Kachnar     | Fabaceae       | Bark          | Skin ulcer                                |
| 18   | Boerbaavia diffusa L.                 | Punarnava   | Nyctaginaceae  | Root          | Gonorrhea, Asthma                         |
| 19   | Butea frondosa Roxb.                  | Palash      | Fabaceae       | Seed          | Leprosy                                   |
| 20   | Calotropis procera (Ait.) Dry.        | Madar       | Asclepiadaceae | Latex, Root   | Asthma, Diarrhea, Fever, Eczema           |
| 21   | Cannabis sativa L.                    | Bhang       | Cannabinaceae  | Leaf, Seed    | Wound, Dandruff                           |
| 22   | Carissa carandas L.                   | Karonda     | Apocynaceae    | Stem, Root    | Leprosy, Eczema                           |
| 23   | Cassia fistula L.                     | Amaltas     | Caesapiniaceae | Leaf          | Ringworm, Itching                         |
| 24   | Cassia tora L.                        | Chakunda    | Caesapiniaceae | Seed          | Herpes, Eczema                            |
| 25   | Catharanthus roseus L.                | Sadabahar   | Apocynaceae    | Leaf, Flower, Root | Diabetes, Dysentery, Toothache, Low B.P. |
| 26   | Chenopodium album L.                  | Pigweed     | Chenopodiaceae | Leaf          | Stomach pain                              |
| 27   | Cleome viscosa L.                     | Wild mustard| Capparidaceae  | Whole plant   | Round worm                                |
| 28   | Clitoria ternatia L.                  | Aparajita   | Fabaceae       | Seed, Root    | Purgative, Cathartic                      |
| 29   | Curculigo orbidiodes Gaertn.          | Kali musli  | Hpoxidaceae    | Rhizome       | Wound                                     |
Some Ethno-medicinal plants of Uttar Pradesh: A review

| No. | Scientific Name                  | Common Name | Family          | Part Used | Uses                                      |
|-----|---------------------------------|-------------|-----------------|-----------|-------------------------------------------|
| 30  | *Curcuma longa* L.             | Haldi       | Zingiberaceae   | Rhizome   | Wound, Cough, Skin                        |
| 31  | *Cydonia dactylon* L.          | Doob        | Poaceae         | Whole plant | Wound                                    |
| 32  | *Cyperus rotundus* L.          | Motha       | Cyperaceae      | Tuber     | Fever, Diarrhea, Dysentery               |
| 33  | *Datura alba* L.              | Datura      | Solanaceae      | Seed      | Asthma, Skin ulcer, Whooping cough        |
| 34  | *Datura stramonium* L.         | Duk         | Solanaceae      | Seed, Root | Anemia, Fever,                           |
| 35  | *Desmodium triflorum* L.       | Kudaliya    | Fabaceae        | Leaf      | Cough, Bronchitis, Wound, Dysentery       |
| 36  | *Eclipta alba* L.              | Bhingraj    | Asteraceae      | Whole plant | Eczema, Anti-ageing                      |
| 37  | *E. prostrata* L.              | False Daisy | Asteraceae      | Root      | Aphrodisiac, Respiratory diseases         |
| 38  | *Eucalyptus globulus* Labill.  | Eucalyptus  | Myrtaceae       | Leaf      | Inflammation                             |
| 39  | *Euphorbia birta* L.           | Dudhi       | Euphorbiaceae   | Plant latex | Cuts, Wounds, Respiratory ailments       |
| 40  | *Ficus benghalensis* L.        | Bargad      | Moraceae        | Leaf      | Skin burn, Astringent                    |
| 41  | *F. glomerata* Roxb.           | Gooler      | Moraceae        | Fruit, Bark | Wound, Ulcer, Asthma                     |
| 42  | *Gossypium herbacum* L.        | Kapas       | Malvaceae       | Seed      | Cough, Constipation, Dysentery, Fever, Pain |
| 43  | *Hibiscus rosa-sinensis* L.    | Gurhal      | Malvaceae       | Flower, Root, Leaf | Arthritis, Cough, Diabetes, Headache, Ulcer |
| 44  | *Hyptis suaveolens* Poir       | Vilayti tulsi | Lamiaceae     | Leaf      | Headache, Insect bites                   |
| 45  | *Iberis amara* L.              | Rocket candytuft | Brassicaceae | Seed      | Asthma, Bronchitis                       |
| 46  | *Ipomea purpurea* L.           | Tall morning glory | Convolvulaceae | Root | Backache, Sore muscle                    |
| 47  | *Jatropha curcas* L.           | Jangli arandi | Euphorbiaceae | Fruit, Root, Leaf | Anemia, Diarrhea, Fever, Jaundice         |
| 48  | *Lawsonia inermis* L.          | Henna       | Lythraceae      | Leaf, Root, Flower | Anemia, Headache, Pain, Ulcer           |
| 49  | *Leucas aspera* Willd.         | Thumbe      | Lamiaceae       | Flower    | Cough, Cold                              |
| 50  | *Mentha longifolia* L.         | Mint        | Lamiaceae       | Leaf      | Carminative, Stimulant                   |
| 51  | *Mirabilis jalapa* L.          | 4 ‘O’ clock plant | Nyctaginaceae | Root | Skin allergy                             |
| 52  | *Nelumbo nucifera* Gaertn.     | East Indian lotus | Nelumbonaceae | Flower | Fever, Cardiac tonic                     |
| 53  | *Ocimum sanctum* L.            | Tulsi       | Lamiaceae       | Leaf      | Ringworm, Earache                        |
| 54  | *Ranunculus sceleratus* L.     | Blister butter cup | Ranunculaceae | Leaf | Asthma, Pneumonia, Skin disorder         |
| 55  | *Rauwolfia serpentina* Bent.   | Sarpandha   | Apocynaceae     | Root      | Hypertension, Intestinal disorder        |
| 56  | *Shorea robusta* Gaertn.       | Sal         | Dipterocarpaceae | Stem | Wound                                    |
| 57  | *Sida acuta* Burm.             | Bariari     | Malvaceae       | Root      | Cough                                    |
| 58  | *Solanum nigrum* L.            | Black nightshade | Solanaceae     | Leaf      | Dropsy                                   |
| 59  | *Tamarindus indica* L.         | Imli        | Fabaceae        | Fruit, Seed | Skin rashes                             |
| 60  | *Tinospora cordifolia* Willd.  | Guruch      | Menispermaceae  | Whole plant | Bronchial diseases                      |
CONCLUSION
Ethno-medicinal plants contain phyto-chemicals especially alkaloids and proved their significant medicinal properties which are continuously being utilized to cure various diseases such as cough, dysentery, fever, leprosy, toothache, eczema, ringworm, cancer, arthritis, pain, headache, jaundice, eye disease, swelling, asthma, bronchitis, ulcer, insect bites and others. But due to lack of interest and awareness among new generation as well as their charms towards cities, there is possibility of losing this valuable traditional knowledge in future. It is the responsibility of each and every one to promote the conservation of ethno-medicinal plants.

REFERENCES
1. Babita K. and Solanki H. (2021). An insight highlight story on the beneficial and phytochemical impact of Prosopis cineraria in Tonk, Rajasthan (India). *International Journal of Biological Innovations*. 3(2): 257-263. https://doi.org/10.46505/IJBI.2021.3202
2. Das S. and Sharangi A. B. (2017). Madagascar periwinkle (*Catharanthus roseus* L.): Diverse medicinal and therapeutic benefits to humankind. *Journal of Pharmacognosy and Phytochemistry*. 6(5): 1695-1701.
3. Dhar M. L., Dhar M. M., Dhawan B. N., Mehrotra B. N. and Ray C. (1968). Screening of Indian plants for biological activity: I. *Indian J. Exp. Biol.* 6(4): 232-247.
4. Hamayun M., Khan S. A., Kim Ho-Youn, Na C. I. and Lee In-Jung (2006). Traditional knowledge and ex situ conservation of some threatened medicinal plants of Swat Kohistan, Pakistan. *Int. J. Botany*. 2(2): 205-209. 10.3923/ijb.2006.205.209
5. Hotwani G. and Mukherjee A. (2005). Study on medicinal plants of Burdwan II. *Flora and Fauna*. 11(1): 81-90.
6. Jain J. B., Kumane S. C. and Bhattacharya S. (2006). Medicinal flora of Madhya Pradesh and Chattisgarh- A review. *Indian Journal of Traditional Knowledge*. 5(2): 237-242.
7. Kumar T. and Chandrashekar K. S. (2011). *Bahunia purpurea* Linn.: A review of its ethnobotany, phytochemical and pharmacological profile. *Res. J. Med. Plant*. 5(4): 420-431. 10.3923/rjmp.2011.420.431
8. Kumari Tamanna and Shukla Vineeta (2020). Covid-19: Towards Confronting an Unprecedented Pandemic. *International Journal of Biological Innovations*. 2(1): 1-10. https://doi.org/10.46505/IJBI.2020.2101
9. Mishra D., Singh R. K. and Srivastava R. K. (2012). Ethno-medicinal plants used to cure different diseases by rural folks and tribes of North eastern tarai districts of Uttar Pradesh, India. *Research Journal of Medicinal Plants*. 6(4): 286-299. 10.3923/rjmp.2012.286.299
10. Mishra N. and Pareek A. (2015). Floristic diversity of angiosperms with special reference to their medicinal properties form Kota district of Rajasthan, India. *International Journal of Advanced Research*. 3(12): 994-1007.
11. Pandey H. P. (2019). Socio-religious plants of terai region of U.P., India. *International Journal of Biological Innovations*. 1(1): 18-22. https://doi.org/10.46505/IJBI.2019.1104.
12. Prakash S. (2017). Medico-ethnozoological studies on homoeothermic vertebrates of Devipatan division of Uttar Pradesh, India. *International Journal of Fauna and Biological Studies*. 4(6): 62-66.
13. Prakash S. and Prakash S. (2021). Ethnomedicinal use of fishes by tribal communities in India: A review. *The Pharma Innovation Journal*. 10(5): 1315-1321.
14. Prakash S. and Upadhyay S. K. (2021). A Study on Indigenous plants as source of...
Anticancer Agents: An Ethnomedicinal Approach. *Asian Journal of Biological and Life Sciences*. 10(2):359-365.

15. Prakash S. and Yadav D. K. (2020). Medico ethno-zoological studies on anamniotes fauna of Devipatan division of Uttar Pradesh, India. *International Journal of Zoology and Applied Biosciences*. 5(5): 222-227.

16. Prakash S. and Verma A. K. (2021). Relevance of Ethnomedicines of Invertebrate origin used by Tribals at Indo-Nepal Border. *International Research Journal of Biological Sciences*. 10(1): 36-39.

17. Rahul J. (2013). Ethnomedicinal study of medicinal shrubs used by people in Lakhmanpura region of Bundelkhand, Uttar Pradesh. *International Journal of Science and Nature*. 4(2): 1-3.

18. Rawat A. K., Mehrotra S., Tripathi S. C. and Shome U. (1997). Hepato protective activity of *Boerhaavia diffusa* L. roots-a popular Indian ethno medicine. *J. Ethnopharmacol.* 56 (1): 61-66. 10.1016/s0378-8741(96)01507-3.

19. Sanda K. A., Grema H. A. Geidam Y. A. and Bukar-Kolo Y. M. (2011). Pharmacological aspects of *Psidium guajava*: An update. *Int. J. Pharmacol.* 7(3): 316-324. 10.3923/ijlp.2011.316.324

20. Sharma A. K. and Sharma R. (2014). Taxonomy of angiosperms and utilization of plants. A text book, Pragati Prakashan, Meerut, U.P., India. 176p.

21. Sharma N. and Pareek A. (2021). Ethnobotanical properties of plants used by the rural community of Dausa District of Rajasthan, India. *International Journal of Biological Innovations*. 3 (1): 179-185. https://doi.org/10.46505/IJBI.2021.3118.

22. Singh A. and Singh P. K. (2009). An Ethnobotanical study of medicinal plants in Chandauli District of Uttar Pradesh, India. *Journal of Ethnopharmacology*. 121(2): 324-329. 10.1016/j.jep.2008.10.018

23. Singh A. P. and Kumari B. (2019). Ethnobotany of medi-flora of Bilaspur tahsil in Rampur district, Uttar Pradesh. *Journal of Pharmacognosy and Phytochemistry*. 8(3): 1181-1184.

24. Singh D. and Khare A. K. (2020). Ethnomedicinal investigation of plants used for the treatment of various skin diseases by local folks in and around Pilibhit Tiger Reserve, Uttar Pradesh, India. *Plant Archives*. 20(2): 3413-3416.

25. Swanston- Flatt S. K., Day C., Bailey C. J. and Flatt P. R. (1989). Evaluation of traditional plant treatments for diabetes: studies in streptozotocin diabetic mice. *Acta Diabetologica Latina*. 26(1): 51-55. 10.1007/BF02581196.

26. Verma A.K. and Prakash S. (2020). Impact of Covid-19 on Environment and Society. *Journal of Global Biosciences*. 9 (5): 7352-7363.

27. Verma A.K., Kumar M., Bussmann R. W. (2007). Medicinal plants in urban environment: The medicinal flora Banaras Hindu University, Varanasi, Uttar Pradesh. *Journal of Ethnobiology and Ethnomedicine*. 3(1): 35. https://doi.org/10.1186/1746-4269-3-35.

28. WHO (1993). World Health Organization: Research Guidelines for Evaluating the Safety and Efficacy of Herbal Medicines. 94p.