

Ethno medicinal Plants Of Bagaha Municipality Of West Champaran: A Survey

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ABSTRACT: West Champaran District was carved out of the old Champaran District in the year 1972. It is located in Terai area with River Narayani flowing through it. The soil is very fertile and good for growth of many plant vegetation. A survey of Bagaha municipality villages was done to find out the ethnobotanical plants used by tribal and non-tribal communities of the area. Tharu tribe is mostly found in the area and people use their traditional medicines to get healed instead of going to an allopathic Doctor. Many Vaidyas have expert knowledge in the field of plants used in medicine. Total of 29 plants belonging to 21 families were mentioned by the locals. Location of West Champaran on global Map is between 26°16' and 27°31' north latitude and 83°50' and 85°18' east longitude. It shares its boundary with Nepal in the North, Gopalganj & part of Purbi Champaran District in South, Purbichamparan District in East and Padrauna & Deoria District of Uttar Pradesh in West.

Key Words: Ethnomedicinal plants, Bagaha, West Champaran.

INTRODUCTION :

In ancient times, natural products were successfully used to treat different ailments owing to their enhanced acceptability in human society, better compatibility with the body and their natural power to treat ailment via synergistic effects and neutralizing combinations to lessen adverse effects. Medicinal plants (trees, shrubs, grasses or vines) can be used in different forms like extracts, in fresh or powdered form, seeds, fruits, vegetable mixtures, etc.

Bagaha is located in Terai area with River Narayani flowing through it. The soil is very fertile and good for growth of many plant vegetation. A survey of Bagaha municipality villages was done to find out the ethnobotanical plants used by tribal and non-tribal communities of the area. Tharu tribe is mostly found in the area and people use their traditional medicines to get healed instead of going to an allopathic Doctor. Many Vaidyas have expert knowledge in the field of plants used in medicine. The climate of the district is cooler & damper than the adjoining districts. Winter begins in November and lasts till February, followed by hot summer months when temperature rises to maximum 43° Celsius. Rains set in during the later part of June. The area receives some winter rain also (Singh and Singh, 2014). This municipality has many tribal communities as well as other people also live in. The tribals mainly used many plant materials as a medicine for their treatment. They avoid using allopathic medicines because of its many side effects as stated by them.

METHOD :

The tribal community, vaidyas as well as other non-tribal persons were interviewed for the use of local plants as medicine. In the beginning they were hesitant to share their secret knowledge but later on when they were assured of the purpose of this study, they willingly shared their informations. Most of them being illiterate or some not willing to give anything in writing, verbal informations were shared and I noted them down and compiled them in a table form.

RESULT / FINDINGS :

Total 29 plants belonging to 21 families were identified and compiled in a table form (Table 1). Pictures of plants were also collected and presented here in a tabulated manner (Table 2).

Table 1 : List of Plants along with Botanical Names, Family and Part used

S.No.	Botanical Name	Family	Part Used
1	<i>Achyranthus aspera</i>	Amaranthaceae	All parts
2	<i>Aegelmarmelos</i>	Rutaceae	Fruit pulp and leaves
3	<i>Aloe vera</i>	Liliaceae	Leaves & Pulp
4	<i>Annona squamosa</i>	Annonaceae	Leaves & Fruit
5	<i>Asparagus sp.</i>	Liliaceae	Tender shoots
6	<i>Azadirachta indica</i>	Meliaceae	All Parts
7	<i>Bacopamonnieri</i>	Plantaginaceae	Leaves
8	<i>Capparisspinosa</i>	Capparaceae	Leaves and full plant
9	<i>Catharanthus roseus</i>	Apocyanaceae	Whole plant
10	<i>Curcuma domestica</i>	Zingiberaceae	Rhizome

11	<i>Eclipta alba</i>	Asteraceae	Leaves and whole plant
12	<i>Embllicaofficinalis</i>	Euphorbiaceae	Fruits
13	<i>Euphorbia hirta</i>	Euphorbiaceae	Whole plant
14	<i>Evolvulus sp.</i>	Convolvulaceae	Whole plant
15	<i>Ipomoea fistulosa</i>	Convolvulaceae	Leaves
16	<i>Mangiferaindica</i>	Anacardiaceae	Bark,Leaves and fruits.
17	<i>Mentha sp.</i>	Lamiaceae	Whole plant
18	<i>Mimosa pudica</i>	Mimosaceae	Whole plant
19	<i>Ocimum sanctum</i>	Lamiaceae	Whole plant
20	<i>Phyllanthusnirurii</i>	Euphorbiaceae	Whole plant
21	<i>Punicagranatum</i>	Punicaceae	Flowers and fruits.
22	<i>Saracaasoka</i>	Caesalpiniaceae	Stem bark and seeds
23	<i>Sidacordifolia</i>	Malvaceae	Whole plant
24	<i>Solanumnigrum</i>	Solanaceae	Leaves and fruits
25	<i>SolanumXanthocarpum</i>	Solanaceae	Whole plant
26	<i>Syzygiumcumini</i>	Myrtaceae	Leaves, fruit, stem bark and seeds.
27	<i>Terminalia bellerica</i>	Combretaceae	Fruits
28	<i>Terminalia chebula</i>	Combretaceae	Fruits
29	<i>Tribulusterrestris</i>	Solanaceae	Fruits , Roots

Details of each plant and their uses as described by them are mentioned here.

Achyranthesaspera – This plant commonly known as “Lat-jeera” by local people is used as stomach tonic, anthelmintic, antifungal, antibacterial, hypoglycaemic, antihyperlipidemic, hepatoprotective and anti-allergic. Root paste and juice help to lower the pain, reduce itching and skin rashes in insect bite(Radha and Vidhya, 2016).

Aegelmarmelos – Known as “Bel” is used in dysentery and diabetes, Bel leaves are used in the preparation of salads(Atul et al., 2012).

Aloe vera - It is also known as “Ghritkumari”. Gel of the plant is used in healing and softening the skin, relieving constipation, dandruff, skin burns, hair conditioning etc.(Sahu et al., 2013)

Annona squamosa- it is commonly called “Custard Apple/ Shareefa”. The seed powder is utilised to abolish lice, leaf extract is used to pacify boils and treat ulcers. Boiled leaf juice is used to control blood sugar levels.(Hosseinabadi, 2021).

Asparagus sp.- Increase urine production. Used to reduce body swelling due to water accumulation. They also use asparagus for high blood pressure,kidney stones, constipation etc.(Hasan et al., 2016).

Azadirachtaindica – Neem is highly valued plant in this region. All parts of the plant are medicinally important. It treats acne, boils, skin rashes, bacterial and fungal infections, nourishes Skin and also used as blood purifier, anti-helminthic, mosquito repellent etc. (Anand and Niharika, 2010).

Bacopamonnieri –Commonly known as “Brahmi”. It improves memory, reduces anxiety, used in epilepsy and white discharge in women(Kumar et al., 2019).

Capparis spinose – Used by locals in treatment of liver diseases, diabetes and arthritis(Mohammad et al., 2012).

Catharanthusroseus – It is known as “Sadabahar”. It has **Antidiabetic,Hypolipidemic ,Anti-cancer,Anti-microbial ,Anthelmintic and Antifungal properties**(Gupta et al., 2017).

Curcuma domestica- Its common name is “Turmeric/ Haldi”. It is used in asthma, liver disorders, anorexia, diabetic wounds, runny nose, cough, wound healing, pain reliever etc(Prasad and Aggarwal, 2011).

Eclipta alba – It is a very famous plant “Bhringraj” used as hair tonic, skin related disorders like rashes, itching, red bumps, allergy, liver tonic etc.(Jahan et al., 2014).

Emblicofficinalis- it is known as “Amla”. It Improves Immunity, used in hair Care, Eye Care , Respiratory Health as it helps to reduce cough, tuberculosis, throat infections and flu. Treats Anemia. It is a Blood Purifier.

Along with Harr and Bahera it is used in TRIPHALA formulation which is good for eye sight and digestion related issues (Krishnaveni and Mirunalini, 2010).

Euphorbia hirta – It is used infemale disorders, worm infestations in children, dysentery, jaundice etc.(Kumar et al., 2010)

Evolvulus sp.Used to cureloss of memory(Singh, 2007; MD(Ayu), 2021).

Ipomoea fistulosa - It has Anti-microbial activity, Anti-convulsant activity and Hepatoprotective activity(Gupta et al., 2011).

Mangiferaindica – Used to treat diarrhoea, dysentery, anaemia, asthma, bronchitis, cough, toothache and leucorrhoea(Kalita, 2014).

Mentha sp.- Helpful in gastrointestinal troubles, bad breath, toothache etc.(Mahendran et al., 2021).

Mimosa pudica-Roots are used fortreating snake bites, diarrhoea, small pox, fever and ulcer. Seeds are used in treating urinary tract infection. Whole plant used in muscle pain(Joseph et al., 2013).

Ocimum sanctum – This plant is used in treatingMouth ulcer, diabetes, itching, cough, cold and boosting immunity(Bhattacharyya and Bishayee, 2013).

Phyllanthusnirurii- it is very useful in urinary tract stones, dysentery and ulcer. It is also used as liver tonic(Satya et al., 2012).

Punicagranatum- It treats sore throats, coughs, urinary infections, digestive disorders, skin disorders and to expel tapeworms(Erfaneh Shaygannia et.al. 2016).

Saracaasoka -It is useful in gynaecological problems specially to control bleeding. It is good heart tonic and cures worm infection(Singh and Singh, 2014).

Sidacordifolia– Leaves are very good heart tonic, treats infertility therefore ladies worship this plant and fast and pray for their children. It also increases male fertility(Chauhan, 2019).

Solanumnigrum – It is very good liver tonic. It also used as a anthelmintic(Campisi et al., 2019).

Solanumxanthocarpum – used intreating cough, fever, and heart diseases. Roots used to treat fever and improve liver health(Kumar and Pandey, 2014).

Syzygiumcumini – It is used as an anthelmintic and for the treatment of sore throat, dysentery and ulcers. It controls blood sugar(Ayyanar and Subash-Babu, 2012).

Terminalia bellerica – Used in Triphala for digestive disorders, eyes health, sore throat and used as an anthelmintic(Jayesh et al., 2019) .

Terminalia chebula – It controls high cholesterol and diarrhea and constipation, and indigestion, Used in Triphala for digestive disorders, eyes health, sore throat and anthelmintic(Gupta, 2012)

Tribulusterrestris – used in liver disease, joint pain, leprosy, coughs, improves sex power and fertility(Asif et al., 2011).

Table 2: Pictures of Plants with Botanical Names



 <i>Azadirachta indica</i>	 <i>Bacopa monnieri</i>	 <i>Capparis spinosa</i>	 <i>Catharanthus roseus</i>	 <i>Curcuma domestica</i>
 <i>Eclipta alba</i>	 <i>Emblica officinalis</i>	 <i>Euphorbia hirta</i>	 <i>Evolvulus sp.</i>	 <i>Ipomoea fistulosa</i>
 <i>Mangifera indica</i>	 <i>Mentha sp.</i>	 <i>Mimosa pudica</i>	 <i>Ocimum sanctum</i>	 <i>Phyllanthus niruri</i>
 <i>Punica granatum</i>	 <i>Saraca asoka</i>	 <i>Sida cordifolia</i>	 <i>Solanum nigrum</i>	 <i>Solanum xanthocarpum</i>
 <i>Syzygium cumini</i>	 <i>Terminalia bellerica</i>	 <i>Terminalia chebula</i>	 <i>Tribulus terrestris</i>	

DISCUSSION: Uses of plant products in medicine is a very old practice and many people even today use plant parts as medicine. Here we see that these 29 plants which were shared by the local people are very much of use and they are helpful in curing many diseases such as fever, skin infections, liver diseases, cancer, cough, gynaecological problems, joint pains, eyes health, digestive/gastrointestinal disorders, blood purifying, controlling blood sugar etc. It was also observed during the survey that this information is limited to elderly persons mostly and the younger generation is not much interested in learning about this which is a point of serious concern.

CONCLUSION: These plants of ethno medicinal importance are very useful and important for our future generations. The use of plants or its parts for treating various diseases needs more investigation for their chemical constituents. During the survey it was also observed that traditional knowledge about the plants is deteriorating. The reason for this degradation of knowledge is mainly the life style of the people specially the young generations. The need for documentation of this information and knowledge and conservation of these biodiversity are urgency of the present time.

BIBLIOGRAPHY :

1. A Review Study on *Punica granatum* L - Erfaneh Shaygannia, Mahmoud Bahmani, Behnam Zamanzad, Mahmoud Rafieian-Kopaei, 2016 [WWW Document], n.d. URL <https://journals.sagepub.com/doi/full/10.1177/2156587215598039> (accessed 6.15.22).
2. Anand, A., Niharika, A., 2010. Antifungal properties of neem (*azadirachta indica*) leaves extract to treat hair dandruff 2094–1749.
3. Asif, M., Naveed, A., Shah, P., Uzair, M., Shaheen, G., Shamim, T., Ali Shah, D.S., Ahmad, K., 2011. *Tribulus terrestris* Linn.: A review article. *J. Med. Plants Res.* 5, 3601–3605.
4. Atul, N.P., Nilesh, V.D., Akkatai, A.R., Kamlakar, S.K., 2012. A review on *Aegle marmelos*: a potential medicinal tree. *Int. Res. J. Pharm.* 3, 86–91.
5. Ayyanar, M., Subash-Babu, P., 2012. *Syzygium cumini* (L.) Skeels: A review of its phytochemical constituents and traditional uses. *Asian Pac. J. Trop. Biomed.* 2, 240–246. [https://doi.org/10.1016/S2221-1691\(12\)60050-1](https://doi.org/10.1016/S2221-1691(12)60050-1)
6. Bhattacharyya, P., Bishayee, A., 2013. *Ocimum sanctum* Linn. (Tulsi): an ethnomedicinal plant for the prevention and treatment of cancer. *Anticancer. Drugs* 24, 659–666. <https://doi.org/10.1097/CAD.0b013e328361aca1>
7. Campisi, A., Acquaviva, R., Raciti, G., Duro, A., Rizzo, M., Santagati, N.A., 2019. Antioxidant Activities of *Solanum nigrum* L. Leaf Extracts Determined in In Vitro Cellular Models. *Foods* 8, 63. <https://doi.org/10.3390/foods8020063>
8. Chauhan, D.M., 2019. Bala (*Sida Cordifolia*) Uses, Benefits, Properties & Ayurvedic Effects. *Planet Ayurveda*. URL <https://www.planetayurveda.com/library/bala-sida-cordifolia/> (accessed 6.15.22).
9. Gupta, A., Mukherjee, D., Jana, G., 2011. *Ipomoea fistulosa*: An Evaluation of Its Pharmacognostical and Phytochemical Profile. *Int. J. Chem. Anal. Sci.* 2, 1270–1273.
10. Gupta, M., Kaushik, S., Tomar, R.S., Mishra, R., 2017. An overview of *Catharanthus roseus* and medicinal properties of their metabolites against important diseases. *Eur. Acad. Res.* 5, 1237–1247.
11. Gupta, P., 2012. Biological and pharmacological properties of *Terminalia chebula* Retz. (Haritaki) – An overview. *Int. J. Pharm. Pharm. Sci.* 4, 62–68.
12. Hasan, N., Ahmad, N., Zohrameena, S., Khalid, M., Akhtar, J., 2016. ASPARAGUS RACEMOSUS: FOR MEDICINAL USES & PHARMACOLOGICAL ACTIONS. *Int. J. Adv. Res.* 2016, 259–267.
13. Hosseinabadi, T., 2021. The Medicinal Importance of *Annona squamosa* Fruits. *J. Explor. Res. Pharmacol.* 6, 1–2. <https://doi.org/10.14218/JERP.2020.00039>
14. Jahan, R., Al-Nahain, A., Majumder, S., Rahmatullah, M., 2014. Ethnopharmacological Significance of *Eclipta alba* (L.) Hassk. (Asteraceae). *Int. Sch. Res. Not.* 2014, 385969. <https://doi.org/10.1155/2014/385969>
15. Jayesh, K., Helen, L.R., Vysakh, A., Binil, E., Latha, M.S., 2019. Protective Role of *Terminalia bellirica* (Gaertn.) Roxb Fruits Against CCl₄ Induced Oxidative Stress and Liver Injury in Rodent Model. *Indian J. Clin. Biochem.* 34, 155–163. <https://doi.org/10.1007/s12291-017-0732-8>
16. Joseph, B., George, J., Mohan, J., 2013. Pharmacology and Traditional Uses of *Mimosa pudica*. *Int. J. Pharm. Sci. Drug Res.* 5, 41–44.
17. Kalita, P., 2014. An Overview on *Mangifera Indica*: Importance and Its Various Pharmacological Action 2.
18. Krishnaveni, M., Mirunalini, S., 2010. Therapeutic potential of *Phyllanthus emblica* (amla): the ayurvedic wonder. *J. Basic Clin. Physiol. Pharmacol.* 21, 93–105. <https://doi.org/10.1515/jbcpp.2010.21.1.93>
19. Kumar, J., Gond, P., Dabas, R., Tripathi, J., Byadgi, P., Tewari, P., Kumar, S., Rao, R., 2019. MEDICINAL IMPORTANCE OF *Bacopa monnieri* (L.) Pennell.
20. Kumar, S., Malhotra, R., Kumar, D., 2010. *Euphorbia hirta*: Its chemistry, traditional and medicinal uses, and pharmacological activities. *Pharmacogn. Rev.* 4, 58–61. <https://doi.org/10.4103/0973-7847.65327>
21. Kumar, S., Pandey, A.K., 2014. Medicinal attributes of *Solanum xanthocarpum* fruit consumed by several tribal communities as food: an in vitro antioxidant, anticancer and anti HIV perspective. *BMC Complement. Altern. Med.* 14, 112. <https://doi.org/10.1186/1472-6882-14-112>
22. Mahendran, G., Verma, S.K., Rahman, L.-U., 2021. The traditional uses, phytochemistry and pharmacology of spearmint (*Mentha spicata* L.): A review. *J. Ethnopharmacol.* 278, 114266. <https://doi.org/10.1016/j.jep.2021.114266>
23. MD(Ayu), D.J.V.H., 2021. *Vishnukranthi* (*Evolvulus alsinoides*) Uses, Qualities, Remedies, Research. *Easy Ayurveda*. URL <https://www.easyayurveda.com/2021/12/30/vishnukranthi-evolvulus-alsinoides/> (accessed 8.1.22).
24. Mohammad, S., Haddad Kashani, H., Azarbad, Z., 2012. *Capparis spinosa* L. Propagation and Medicinal uses. *Life Sci. J.* 9, 684–686.
25. Prasad, S., Aggarwal, B.B., 2011. Turmeric, the Golden Spice: From Traditional Medicine to Modern Medicine, in: Benzie, I.F.F., Wachtel-Galor, S. (Eds.), *Herbal Medicine: Biomolecular and Clinical Aspects*. CRC Press/Taylor & Francis, Boca Raton (FL).
26. Radha, V., Vidhya, R., 2016. Biological Activity of *Achyranthes Aspera* Linn. -A Review. *Asian J. Biochem. Pharm. Res.* 1, 2231–2560.
27. Sahu, P., Giri, D., Singh, R., Pandey, P., Gupta, S., Shrivastava, A., Kumar, A., Pandey, K., 2013. Therapeutic and Medicinal Uses of *Aloe vera*: A Review. *Pharmacol. Pharm.* 4.
28. Satya, A., Narendra, K., swathi, j, sowjanya, k. m, 2012. *Phyllanthus niruri*: A Review on its Ethno Botanical, Phytochemical and Pharmacological Profile. *J. Pharm. Res.* 5, 4681
29. Singh, A., 2007. Review of Ethnomedicinal Uses and Pharmacology of *Evolvulus alsinoides* Linn. *Ethnobot. Leaflet.* 12.
30. Singh, R., Singh, V., 2014. Ethnomedicinal plants of Valmiki Tiger Reserve, West-Champaran district, Bihar, India. *J. Non-Timber For. Prod.* 21, 185–192.