

## Documentation of wild plants and their ethnomedicinal uses in Bhagalpur *diara* lands, Bihar, India

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### ABSTRACT

This paper documents 49 wild ethnomedicinal plant species of Bhagalpur *diara* lands, Bihar (India). These species belong to 45 genera and 30 families of angiosperms. Amongst these families, Asteraceae is the largest with 4 species followed by 7 families (Amaranthaceae, Convolvulaceae, Euphorbiaceae, Moraceae, Poaceae, Solanaceae and Verbenaceae) and 2 families (Asclepiadaceae and Mimosaceae) having 3 and 2 species respectively. The rest families are represented by only 1 species each. Overall, the dicots (45) excel the monocots (4). The wild plants that grow luxuriantly and serve commonly as ethnomedicines are *Argemone mexicana*, *Blumea lacera*, *Chenopodium album*, *Chrysopogon zizanioides*, *Cynodon dactylon*, *Euphorbia hirta*, *Ficus racemosa*, *Ipomoea aquatica*, *Saccharum spontaneum*, *Solanum nigrum* and *Tinospora cordifolia*. All the recorded wild ethnomedicinal plants are more or less useful in the treatment of diverse diseases like anaemia, arthritis, asthma, bronchitis, carbuncle, constipation, cough-cold, diabetes, diarrhoea, dysentery, dysuria, earache, fever, gonorrhoea, hypertension, indigestion, jaundice, kidney stone, leucorrhoea, menstrual disorders, nausea, piles, rheumatism, skin diseases (blisters, boils, eczema, leucoderma, wounds), toothache, vomiting, etc. Out of these, the most commonly treated disease is diabetes followed by anaemia, piles, jaundice, leucorrhoea and menstrual disorders.

**Key Words** - Bhagalpur district, *Diara* lands, Ethnomedicinal uses, Wild plants

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### INTRODUCTION

Wild plants are those plants that grow spontaneously in self-maintaining population in natural or semi-natural ecosystems. They have been always useful in the treatment of various human ailments (Singh 2016; Singh *et al.*, 2018; Gogoi & Sharma 2022; Kumari *et al.*, 2022; Nataraj *et al.*, 2023; Xie *et al.*, 2023; Goel *et al.*, 2024). Their medicinal demand is increasing day-by-day due to their own attributes like non-narcotic, harmless, easy availability, least cost and eco-friendly nature. They are precious in the medication and crucial for

primary healthcare of poor people inhabiting the areas of hardships. Among such type of habitats, *diara* lands seem to be unique fertile lands which are well-known to harbour numerous wild plants with high medicinal potential and value. However, these wonderful lands have neither been explored taxonomically nor ethnobotanically. Therefore, the present investigation has been carried out to document the wild plants and their ethnomedicinal uses in the treatment of various diseases of *diara* folks of Bhagalpur district, Bihar (India).

## STUDY AREA

*Diara lands* are landscapes/islands in the riverbed and its tributaries. These are formed due to meandering and course changing behaviour of the river itself. These are characterised by inundation during monsoon season, emergence after recession of flood water and mostly undulating topography. Such lands occur extensively in the northern and eastern regions of India mainly in the states of Assam, Bihar, Odisha, Uttar Pradesh and West Bengal (Panda *et al.*, 1996; Kumar *et al.*, 2008). Among these unique lands, Bhagalpur *diara* lands exhibit their typicalness of successive annual submergence by flood water, moderately to highly fertile alluvial soils and richness in biodiversity cum biological resources (Singh, 2004; Ranjan *et al.*, 2018; Choudhary *et al.*, 2019; Ullah, 2022).

Bhagalpur district (25°07' - 25°30' NL and 86°37' - 87°30' EL, 141 feet MSL) is placed in the southern portion of the province Bihar (India). It is delimited by Godda–Sahebganj districts (Jharkhand) in the east and by own districts of Bihar in the other sides, viz., West– Munger and Khagaria; North–Madhepura, Purnea and Katihar; South– Banka. It is spread over a geographical area of 2569 km<sup>2</sup>. It constitutes a momentous segment of Gangetic plain and encompasses several typical *diara* lands sheltering diverse wild plants of ethnomedicinal importance. It experiences a tropical monsoon type climate exhibiting three distinct seasons (i.e., summer, rainy and winter) in a year.

## MATERIALS & METHODS

The popular *diara* lands (viz., Bairiya, Chauwania and Shankarpur) of Nathnagar block, Bhagalpur district, Bihar (India) were visited frequently in each season during January, 2022 – December, 2024 and later on purportedly off and on for documentation of wild plants and their traditional uses in the therapy of diverse diseases of native folks. The specimens of wild plants growing in these three *diara* lands of Bhagalpur were collected and pressed in the field. Subsequently, the pressed specimens were dried properly and the herbarium was prepared according to the standard methods

(Lawrence, 1951; Jain & Rao, 1977). The plant specimens were critically examined and properly identified with the help of available floras (Haines, 1961; Hooker, 1973; Varma, 1981; Kabeer & Nair, 2009) and other literature (Bor, 1960; Subramanyam, 1962; Biswas & Calder, 1984; Cook, 1996). The identified specimens have been deposited in the Herbarium, University Department of Botany, Tilka Manjhi, Bhagalpur University, Bhagalpur (Bihar), India (BHAG). The ethnomedicinal information related to these wild plants were procured through conversations, interviews and discussions following the semi-structured questionnaires in common languages such as Angika, Bhojpuri and Hindi. The traditional healers/herbalists (*Vaidya, Kaviraj, Hakim*) were also consulted for authentication of the acquired ethnomedicinal information.

## ENUMERATION

The wild plants used as ethnomedicines in Bhagalpur *diara* lands are grouped according to their life-forms (viz., Herbs, Shrubs, Trees and Vines) and recorded in alphabetical order of their botanical names followed by vernacular name (in italics), voucher number (MONA – collection number) and family name. Thereafter, their ethnomedicinal uses i.e., identity of plant part(s)/product(s) and mode(s) of administration are described in brief.

## HERBS

1. *Acalypha indica* L. / *Kuppi* / MONA-01 / Euphorbiaceae: Leaf decoction is taken orally in the therapy of asthma and diabetes.
2. *Achyranthes aspera* L. / *Chirchiri* / MONA-03 / Amaranthaceae: Root decoction is consumed daily in the morning to treat diabetes. Root paste is applied topically on infected portions for relief from piles.
3. *Alternanthera sessilis* (L.) R. Br. ex DC. / *Sironchi* / MONA-05 / Amaranthaceae: The cooked shoots are often consumed to cure diarrhoea and dysentery.
4. *Amaranthus spinosus* L. / *Kataiya sag* / MONA-07 / Amaranthaceae: The leaves are

- cooked properly and consumed to improve appetite and to treat diabetes, fever and pain.
5. *Argemone mexicana* L. / *Barbhanda* or *Pila Kataiya* / MONA-06 / Papaveraceae: Plant latex is applied externally on the infected skin portions for effective remedy of eczema and boils.
  6. *Blumea lacera* (Burm. f.) DC. / *Kukrora* / MONA-11 / Asteraceae: Leaf paste is regularly applied topically on the affected portions for curing blisters, boils and wounds.
  7. *Boerhavia diffusa* L. / *Nakti* / MONA-12 / Nyctaginaceae: Root decoction is taken orally in the therapy of diabetes and diarrhoea. Leaf paste is consumed to treat indigestion and jaundice.
  8. *Chenopodium album* L. / *Bathua* / MONA-15 / Chenopodiaceae: Young shoots are cooked properly and eaten lavishly to improve digestion, treat anaemia and regulate hypertension.
  9. *Chrysopogon zizanioides* (L.) Roberty / *Katrighas* / MONA-50 / Poaceae: Root extract is dropped in the eye for immediate relief from infection. Root infusion is drunk for lowering fever.
  10. *Cleome viscosa* L. / *Pila hurhur* / MONA-56 / Cleomaceae: Fresh leaf juice is dropped into the ear for instant relief from pain.
  11. *Coccinia grandis* (L.) Voigt / *Tilkocha* / MONA-47 / Cucurbitaceae: Root/leaf juice is regularly drunk every day in empty stomach to control diabetes.
  12. *Croton bonplandianus* Baill. / *Mirchaniya* / MONA-89 / Euphorbiaceae: Leaf decoction is commonly applied on the back of the body to relieve back pain. Plant latex or paste is applied topically on cuts and skin infections to stop bleeding and to promote healing respectively.
  13. *Cuscuta reflexa* Roxb. / *Amarlata* / MONA-70 / Cuscutaceae: Plant juice or paste is taken orally to cure jaundice. Plant juice is mixed with mustard oil and the mixture is warmed properly to prepare an ointment which is applied topically on painful knees to relieve swelling.
  14. *Cynodon dactylon* (L.) Pers. / *Doob* / MONA-61 / Poaceae: Shoot juice is drunk every day for one month to cure anaemia, constipation and menstrual disorders.
  15. *Datura metel* L. / *Dhatura* / MONA-63 / Solanaceae: The leaves are warmed and applied as poultice on painful body parts for relief from pain.
  16. *Eclipta prostrata* (L.) L. / *Bhangroia* / MONA-53 / Asteraceae: Shoot decoction is drunk twice every day till cure of indigestion and jaundice.
  17. *Enhydra fluctuans* Lour. / *Hincha* / MONA-48 / Asteraceae: Leaf juice is consumed to cure constipation and flatulence.
  18. *Euphorbia hirta* L. / *Dudhi* / MONA-49 / Euphorbiaceae: Shoot decoction is taken orally once or twice daily in the medication of asthma, diabetes and dysentery.
  19. *Evolvulus alsinoides* (L.) L. / *Sukrisur* / MONA-62 / Convolvulaceae: Leaf extract is sipped to treat asthma, constipation, cough and fever.
  20. *Heliotropium indicum* L. / *Hathisur* / MONA-08 / Boraginaceae: Leaf paste is applied topically on sores to stop bleeding and to promote healing.
  21. *Ipomoea aquatica* Forssk. / *Karmi* / MONA-53 / Convolvulaceae: Tender leaves are cooked appropriately and consumed to cure bronchitis and to alleviate fasting blood glucose level in diabetic patients.
  22. *Leucas aspera* (Willd.) Link / *Guma* / MONA-65 / Lamiaceae: Fresh leaf juice is administered orally as an effective

appetizer and as a very common folklore medicine for controlling diabetes.

23. *Mimosa pudica* L. / *Lajoni* / MONA-75 / Mimosaceae: Root decoction is consumed daily till cure of leucorrhoea.
24. *Persicaria hydropiper* (L.) Del. / *Jal mirch* / MONA-78 / Polygonaceae: Plant decoction is frequently consumed to check bleeding.
25. *Phylla nodiflora* (L.) Greene / *Jalbuti* / MONA-64 / Verbenaceae: Plant decoction or paste is applied externally to treat boils and to stop bleeding. Leaf decoction is taken orally to cure gonorrhoea.
26. *Phyllanthus urinaria* L. / *Bhuiamla* / MONA-77 / Phyllanthaceae: Fresh plant juice is consumed regularly in the remedy of gonorrhoea, jaundice and kidney stones.
27. *Pistia stratiotes* L. / *Chhoti jalkumbhi* / MONA-90 / Araceae: Leaf decoction is taken orally to relieve dysuria.
28. *Saccharum spontaneum* L. / *Kans* / MONA-88 / Poaceae: Jaggery (vern. *gud*) is prepared from the fresh juice of sprawlers (i.e., decumbent shoots with smaller laminae and tasting sweeter than the erect ones) and frequently eaten to cure piles.
29. *Solanum nigrum* L. / *Van phutka* / MONA-79 / Solanaceae: Ripe fruits are lavishly eaten in the remedy of piles. Tender leaves are cooked and ingested to treat leucorrhoea.
30. *Solanum surattense* Burm. f. / *Rengani* / MONA-09 / Solanaceae: Fruit decoction is sipped to treat asthma, cough, fever, piles and toothache.
31. *Trianthema portulacastrum* L. / *Pindooa* / MONA-10 / Aizoaceae: The properly cooked leaves are consumed for effective control of diabetes and curing diarrhoea and rheumatism.
32. *Xanthium strumarium* L. / *Latkan* / MONA-14 / Asteraceae: Fruit decoction is applied on the affected body parts to treat arthritis,

headache and skin diseases. However, it is also consumed against constipation and fever.

## B. SHRUBS

1. *Abutilon indicum* (L.) Sw. / *Kanghi* / MONA-17 / Malvaceae: Root paste is regularly applied on piles-infected area over a month for curing the disease.
2. *Calotropis procera* (Ait.) R. Br. / *Aak* / MONA-19 / Asclepiadaceae: The leaves are warmed and applied as poultice on the affected body parts twice daily for relief from rheumatism.
3. *Cassia fistula* L. / *Amaltas* / MONA-21 / Caesalpiaceae: Decoction of stem bark or fruit pulp is consumed twice every day to control diabetes.
4. *Clerodendrum petasites* (Lour.) Moore / *Titbhat* / MONA-24 / Verbenaceae: Root extract is sipped to treat diarrhoea, dysentery and vomiting. Stem is used as an herbal toothbrush and the juice of crushed stem is held in the buccal cavity for some time to relieve toothache instantly.
5. *Ipomoea carnea* Jacq. / *Behaya* / MONA-36 / Convolvulaceae: Milky latex is applied externally to treat leucoderma and other skin diseases.
6. *Justicia adhatoda* L. / *Bakas* / MONA-59 / Acanthaceae: Leaf decoction is drunk as a very strong expectorant.
7. *Murraya koenigii* (L.) Spreng. / *Curry patta* / MONA-68 / Rutaceae: Leaf decoction/ extract is sipped to improve digestion, treat piles and control diabetes.
8. *Nyctanthes arbor-tristis* L. / *Harsingar* / MONA-81 / Oleaceae: Leaf juice is mixed with honey and fruit powder of black pepper (*Piper nigrum* L.). The prepared mixture is consumed in the treatment of arthritis, diabetes and fever.
9. *Vitex negundo* L. / *Sinwar* / MONA-101 / Verbenaceae: Inflorescences are boiled

properly in mustard oil to make an ointment that is regularly applied externally on the affected body parts for curing arthritis and piles.

### C. TREES

1. *Acacia nilotica* (L.) Del. / *Babul* / MONA-102 / Mimosaceae: Decoction of stem bark is drunk for controlling diabetes and dysentery.
2. *Annona squamosa* L. / *Sharifa* / MONA-65 / Annonaceae: Fresh leaf extract is taken orally twice per day for at least 2–3 months to control diabetes.
3. *Ficus hispida* L.f. / *Kath gular* / MONA-66 / Moraceae: Decoction of bark or fruit is consumed for relief from constipation and cure of jaundice and piles.
4. *Ficus racemosa* L. / *Gular* / MONA-04 / Moraceae: Decoction of unripe fruit is sipped once every day to check diabetes. Juice of tender leaf is drunk to cure dysentery. Milky latex is applied topically on piles-affected area for quick relief from the ailment.
5. *Ficus religiosa* L. / *Pipal* / MONA-104 / Moraceae: Leaf decoction is regularly drunk in the empty stomach, especially in early morning, as an effective control measure of diabetes. Additionally, its consumption is very useful in the treatment of constipation, indigestion, diarrhoea and dysentery.
6. *Melia azedarach* L. / *Bakain* / MONA-105 / Meliaceae: Leaf decoction is licked for curing indigestion. Decoction of stem bark is taken orally in small dose in treating nausea, thirst and vomiting.

### D. VINES

1. *Pergularia daemia* (Forssk.) Chiov. / *Chhogalbel* / MONA-107 / Asclepiadaceae: Leaf paste is applied externally as a poultice for relief from carbuncles. Leaf juice is licked in minimum dose in treating amenorrhoea.

2. *Tinospora cordifolia* (Thunb.) Miers / *Gurich* / MONA-106 / Menispermaceae: Decoction of mature stem is regularly drunk in the empty stomach for effective control of diabetes.

### RESULTS & DISCUSSION

The present study revealed the occurrence of 49 species of wild plants used as ethnomedicines in Bhagalpur *diara* lands of Bihar (India). These species belonged to 45 genera and 30 families of angiosperms. Amongst these families, Asteraceae was the largest one with 4 species followed by seven families (Amaranthaceae, Convolvulaceae, Euphorbiaceae, Moraceae, Poaceae, Solanaceae and Verbenaceae) and two families (Asclepiadaceae and Mimosaceae) having 3 and 2 species respectively. The rest twenty families (Acanthaceae, Aizoaceae, Annonaceae, Araceae, Boraginaceae, Caesalpiniaceae, Chenopodiaceae, Cleomaceae, Cucurbitaceae, Cuscutaceae, Lamiaceae, Malvaceae, Meliaceae, Menispermaceae, Nyctaginaceae, Oleaceae, Papaveraceae, Phyllanthaceae, Polygonaceae and Rutaceae) were represented by only one species each. Overall, the dicots (45) excelled monocots (4). The wild plants such as *Acacia nilotica*, *Argemone mexicana*, *Blumea lacera*, *Chenopodium album*, *Chrysopogon zizanioides*, *Cynodon dactylon*, *Enhydra fluctuans*, *Euphorbia hirta*, *Ficus racemosa*, *Ipomoea aquatica*, *Pistia stratiotes*, *Saccharum spontaneum*, *Solanum nigrum*, *Tinospora cordifolia* and *Xanthium strumarium* were growing luxuriantly in the region.

Further this investigation manifested the high ethnomedicinal perspective of wild plants for *diara* folks of Bhagalpur district (Bihar). These plants were used by them in the treatment of their various diseases such as anaemia, arthritis, asthma, bronchitis, carbuncle, constipation, cough–cold, diabetes, diarrhoea, dysentery, dysuria, earache, fever, gonorrhoea, hypertension, indigestion, jaundice, kidney stone, leucorrhoea, mental disorders, nausea, piles, rheumatism, skin diseases (blisters, boils, eczema, leukoderma, wounds), toothache, vomiting, etc. Amongst these, the most

commonly treated/cured disease was diabetes followed by anaemia, piles, jaundice, leucorrhoea, mental disorders, etc. The commonly used wild ethnomedicinal plants in Bhagalpur *diara* lands were herbs (*Achyranthes aspera*, *Argemone mexicana*, *Blumea lacera*, *Boerhavia diffusa*, *Chenopodium album*, *Chrysopogon zizanioides*, *Cuscuta reflexa*, *Cynodon dactylon*, *Euphorbia hirta*, *Ipomoea aquatica*, *Mimosa pudica*, *Phyllanthus nodiflora*, *Phyllanthus urinaria*, *Saccharum spontaneum*, *Solanum nigrum*), shrubs (*Cassia fistula*, *Clerodendrum petasites*, *Justicia adhatoda*, *Nyctanthes arbor-tristis*, *Vitex negundo*), trees (*Ficus hispida*, *Ficus racemosa*, *Ficus religiosa*, *Melia azedarach*) and vines (*Pergularia daemia*, *Tinospora cordifolia*). The different plant parts (roots, stems, leaves, shoots, fruits, stem bark) or products—juice (extract, infusion, decoction), latex and paste were generally used in the treatment of diseases. The various routes of administration were prevalent in the medication of *diara* folks.

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#### REFERENCES

- Biswas, K. & Calder, C.C. 1984. *Hand-book of common water and marsh plants of India and Burma*. Dehra Dun: Bishen Singh Mahendra Pal Singh.
- Bor, N.L. 1960. *The grasses of Burma, Ceylon, India and Pakistan*. London: Pergamon Press.
- Choudhary, S.K., Kumar, R., Gupta, S.K., Kumar, A. & Vimal, B.K. 2013. Development of *tal* and *diara* land for sustainable agriculture in central Bihar, India. *Current Journal of Applied Science and Technology*, 35(5), 1–13. DOI: 10.9734/CJAST/2019 v35;530701
- Cook, C.D.K. 1996. *Aquatic and wetland plants of India*. New York: Oxford University Press.
- Goel, P., Kumari, A., Thakur, S., Rana, Y., Goldi & Rahul. 2024. Medicinal importance of wild edible fruits of Mandi district of Himachal Pradesh. *Journal of Pharmacognosy and Phytochemistry*, 13(4), 350–358. <https://doi.org/10.22271/phyto.2024.v13.i4d.15028>
- Gogoi, J. & Sharma, M. 2022. Medicinal uses of wild edible plants by the Wancho tribe in Longding district of Arunachal Pradesh. *International Journal of Pharmaceutical Research & Allied Sciences*, 11(4), 107–114. <https://doi.org/10.51847/cgvPG6X6yQ>
- Haines, H.H. 1961. *The Botany of Bihar and Orissa*. Calcutta: Botanical Survey of India.
- Hooker, J.D. 1973. *Flora of British India*. Dehra Dun: Bishen Singh Mahendra Pal Singh.
- Jain, S.K. & Rao, R.R. 1977. *A handbook of field and herbarium methods*. New Delhi: Today & Tomorrow's Printers & Publishers.
- Kabeer, K.A.A. & Nair, V.J. 2009. *Flora of Tamil Nadu – Grasses*. Calcutta: Botanical Survey of India.
- Kumar, G., Sahoo, R.N., Tomar, R.K., Bhavanarayam, M., Gupta, V.K., Rao, C.S., Sehgal, V.K. & Chakraborty, D. 2008. Land use and land cover change in active flood plain using satellite remote sensing. *Journal of Agricultural Physics*, 8, 22–28.
- Kumari N., Radha, Kumar M., Mekhemar M., Lorenzo J. M., Pundir A., Devi K. B., Prakash S., Puri S., Thakur M., Rathour S., Rais N., Jamwal R., Kumar A., Dhupal S., Singh S., Senapathy M., Dey A., Chandran D., Amarowicz R., Andrade-Cetto A. 2022. Therapeutic uses of wild plant species used by rural inhabitants of Kangra in the western Himalayan region. *South African Journal of Botany*, 148, 415–436. <https://doi.org/10.1016/j.sajb.2022.05.004>
- Lawrence, G.H.M. 1951. *Taxonomy of vascular plants*. New York: MacMillan Co.
- Nataraj, B.T., Dave, L., Barda, A., Madhu, Mishra, T., Srivastava, R. & Patil, S.J. 2023. Wild

- Indian medicinal plants and their biological studies. *BioGecko*, 12(03), 7006–7011.
- Panda, B.C., Sahoo, R.N. & Sharma, M. 1996. Land use mapping of Brahmani–Birura *diara* in Cuttack, Orissa. In: *Remote Sensing for Natural Resources*. Published jointly by Indian Society of Remote Sensing and NNRMS, ISRO, pp. 167–170.
- Ranjan, S., Choudhary, C.D., Kumar, R., Kumar, C. & Kumar, A. 2018. Assessment of soil fertility of *Tal* and *Diara* lands: A case study of Bhagalpur district, Bihar, India. *Journal of Pharmacognosy and Phytochemistry*, 7(5), 1178–1180.
- Singh, C.B. 2004. Comparative assessment of physico-chemical properties of soils of grassland and *diara* land of Bhagalpur, Bihar (India). *Environment & Ecology*, 22(Spl-2), 287–291.
- Singh, C.B. 2016. Ethnomedicinal uses of wild herbs in Bhagalpur district, Bihar. *Ethnobotany*, 28, 35–39.
- Singh, M.K., Meena, D., Bhattacharyya, R., Arya, M. & Bharti, K.A. 2018. Exploration of wild medicinal plants for better livelihood options for the tribal population of forest fringe villages. *Journal of Medicinal Plants Studies*, 6(4), 156–166.
- Subramanyam, K. 1962. *Aquatic angiosperms*. New Delhi: CSIR.
- Ullah, R. 2022. Classification of soil in Bhagalpur *diara* lands. *Journal of Emerging Technologies and Innovative Research*, 9(1), g43–g49.
- Verma, S.K. 1981. *Flora of Bhagalpur (Dicotyledons)*. New Delhi: Today & Tomorrow's Printers & Publishers.
- Xie, J., Luo, C., Yang, X., Ren, Y., Zhang, X., Chen, H., Zhao, Y., Lin, S. & Wu, F. 2023. Study on wild medicinal plant resources and their applied ethnology in multi-ethnic areas of the Gansu–Ningxia–Inner Mongolia intersection zone. *Journal of Ethnobiology and Ethnomedicine*, 19, 18. <https://doi.org/10.1186/s13002-033-00585-5>

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