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## Study on the plants traditionally used for the treatment of the diseases related to the sensory organs in the Gaya district of India

**Ayesha Fatima and Dr. Dinesh Kumar Yadav**

### Abstract

A traditional healthcare practice of indigenous people pertaining to human health is termed Ethnomedicine. Human civilization has evolved as a result of interaction of people with their environment, especially with plants. Traditional knowledge is generally associated with biological resources and is invariably an intangible component of such a biological resource. The traditional and ancient literature of medicines of historical significance over world proved traditional values of medicinal plant are still very important for human being to survive on this planet. The traditional or ethnomedicinal uses in rural area by the local inhabitant are still based on different parts of several plants to cure a specific suffering and to combat a particular disease have been in vogue from ancient times. It has been also crystalized in the form of medicine in our culture like Ayurveda, Siddha, Unani, Tibetan, Hakim's etc. In the present review, the author has attempted to focus the role of the plants traditionally used for the treatment of the diseases related to the sensory organs in the district Gaya of India.

**Keywords:** Traditional, Ethnomedicine, Sensory Organs, Biological Resources and Treatment

### Introduction

The earliest times, plants have provided man with means of healing. The use of different parts of several medicinal plants to cure a specific suffering and to combat a particular disease has been in vogue from ancient times. In recent times, studies and surveys of ethnomedicines of traditional medicines are putting long strides in the development of modern or classic medicine.

Gaya district is part of ancient Magadh kingdom. It is founded originally by primitive kikas, kolas and Asuras etc. (Chakarverti 1981) [2], before migration of Aryans. The earlier inhabitants of Gaya region who possessed a distinct religion, culture and traditions of their own. Today it forms south segment of Bihar state, it is extended from 24°17'45" N to 25°0'30" North Latitudes and from 84°17'15" to 85°27'45" Eastlongitude, district land span covers an area of 4,976 square kilometers. It is divided into 3-sub division and 18 development blocks containing over 43, 79, 383 people approximately.

The phytogeography of this region is well determined by altitudes in the district. Southern part of the district formed of highlands and its northern flank of chotanagpur plateau and lowered gradually towards northern parts of the district it is alluvium of Ganga. The southern highland containing moist type of flora while dry type of flora cover the northern plain. District Gaya is the meeting point of chotanagpur plateau and Gangetic plain. In this district literacy is only 13% and about 40% rural people living below poverty line like Bhuiyan, Pasi, Dusadh, Mushar, Bhokta, Birhar, Ahir etc. These castes are progeny of primitive inhibitors of ancient Magadh. They are mostly laborer class and depend only on primitive agriculture minor forest products and locally oriented production technology for their livelihood. Most of these live in interior ruralpockets where urban facilities are negligible. Remoteness and poverty made the rural people of this area dependent on the local herbal medicines and treatment of the different types of mental and physiological use of herbal medicines in the rural area by the local inhabitant, of this area, for eye, ear and nose (Sensory Organs) diseases have not been reported so far, except some sporadic reports Singh 1992) [3], Tiwari (1992); Yadav *et al.* (1997) [4]

and Goel et al. (1999) [5] but no emphasis has been given particularly on Sensory organ diseases and their traditional treatment.

Due to varied climatic and geographical features, India alone holds the large number of medicinal plants used in indigenous system of medicine (Shah *et al.* 2013, 2014; pala *et al.* 2012; Debbarma *et al.* 2017). Jaundice can also result from excessive breakdown of red blood cells (a process called Haemolysis) and too much bilirubin is released into the blood stream. Jaundice is common in newborns because, there is some Haemolysis during delivery and the newborn's liver is immature and may not be fully matures to handle the task of bilirubin for a few days. Jaundice is a yellowish discoloration of the skin, sclera and mucus membranes caused by hyperbilirubinemia. Ethnomedicinal data supply clues for the materials to be tested by clinical and pharmacological researches, provides new distribution areas for raw drugs and a broad base for interaction with other systems of medicines. These are considerable economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of Jaundice.

### Material and Methods

The observation is based on survey conducted in rural area of Gaya District during 2016-18. During the field work personal interviews have been conducted with treatment from medicinal plants, aged man, head of the villages, housewives etc. in different rural pockets. The data recorded on traditional use of plants in diseases of sensory organs, modes of administration, application of plants and plant parts. All

information carefully cross checked and documented possibly with correct terminology of diseases based on symptoms. Voucher specimens were collected following the method of Jain (1965) [6] and Jain & Rao (1976). All the plants critically identified with the help of local and regional floras Haines (1921-25) [8] and moony (1950) [9]. The prepared herbarium with botanical name followed by family, local name, date of collection, field number, specimen number etc. deposited in Department of Botany, Magadh University, Bodh-Gaya (Bihar).

### Discussions

The present data shows the 53 plants species and 50 genera belonging to 33 families are used in different ailments of sensory organs. The plant part and diseases mode of administration and application are tabulated in Table-1 and plant parts disease wise analysis indicates that the use of leaves is maximum i.e. 20 times in a sensory organ diseases while the use of stem, flower and latex is minimum i.e., only one time. Another most important observation indicates that the earache is the most common disease in the rural areas which is cured successfully by traditional herbal healers.

### Enumeration and Result

Plantspecies are arranged alphabetically with botanical names, family, local name, field number, plant parts, sensory organs, diseases, mode of administration and application are tabulated in Table-1 and plant parts, diseases wise analysis are tabulated in Table-2.

**Table 1:** Plant details with their uses

| SI No. | Botanical Name                                                               | Plant Parts | Sensory Organs | Diseases         | Modes of Administration / Preparation                       |
|--------|------------------------------------------------------------------------------|-------------|----------------|------------------|-------------------------------------------------------------|
| 1.     | Acacia Arabica (Larn.)<br>Fam: Mimosaceae<br>L.N: Baboor<br>P.A: 1794        | Leaves      | Eye            | Eye Flow         | Decoction of leaves mixed with honey, applied as collyrium. |
| 2.     | Acalypha Indica L.<br>Fam: Euphorbiaceae<br>L.N: Kuppi<br>P.A: 1822          | Leaves      | Ear            | Earache          | Leaves juice, used as ear drops.                            |
| 3.     | Achyranthes Aspera L.<br>Fam: Acanthaceae<br>L.N: Chirchiri<br>P.A: 1445     | Root        | Eye            | Eye Swelling     | Root powder mixed with honey is applied.                    |
|        |                                                                              | Root        | Ear            | Lower Hearing    | Cooked with mustard oil and extract used as ear drops.      |
| 4.     | Adhatoda Vasica Nees.<br>Fam: Acanthaceae<br>L.N: Bakas<br>P.A: 1807         | Plant       | Nose           | Nasal Hemorrhage | Juice mixed with sugar candy is given orally.               |
| 5.     | Ailanthus excels Roxb.<br>Fam: Simarubiaceae<br>L.N: Ghomeem<br>P.A: 1351    | Bark        | Ear            | Earache          | Juice used as ear drops.                                    |
| 6.     | Allium Cipa. L.<br>Fam: Liliaceae<br>L.N: Pyaaz<br>P.A: 1305                 | Bulb        | Ear            | Earache          | Warm juice used as eardrops.                                |
|        |                                                                              | Bulb        | Nose           | Nasal Hemorrhage | Juice used as snuff.                                        |
| 7.     | Allium Sativum L.<br>Fam: Liliaceae<br>L.N: Rasoon<br>P.A: 1242              | Bulb        | Eye            | Night Blindness  | 2 drops juice used as eye drops in sunset time.             |
|        |                                                                              | Bulb        | Ear            | Earache          | Hot juice used as eardrops.                                 |
| 8.     | Alocacia Indica (Roxb).<br>shults<br>Fam: Araceae<br>L.N: Kachu<br>P.A: 2108 | Tuber       | Eye            | Ear Flow         | Juice applied as ear drops.                                 |
| 9.     | Amorphophallus<br>Campanulatus (Roxb.)                                       | DC. Tuber   | Ear            | Earache          | Paste applied in ear.                                       |

|     |                                                                                    |          |          |                       |                                                                                                                                                          |
|-----|------------------------------------------------------------------------------------|----------|----------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | Fam: Araceae<br>L.N: Not Available<br>P.A: 1854                                    |          |          |                       |                                                                                                                                                          |
| 10. | Asparagus racemosus wild<br>Fam: Liliaceae<br>L.N: Baboor<br>P.A: 1794             | Root     | Eye      | Weak<br>Eyesight      | Root powder along with milk is given orally.                                                                                                             |
| 11. | Boerheviadiffusa L.<br>Fam: Nyctagineaceae<br>L.N: Gadhporba<br>P.A: 1902          | Root     | Eye      | Night<br>Blindness    | Root grounded with snail's shell is applied.                                                                                                             |
|     |                                                                                    | Root     | Eye      | Eye Itching           | Root rubbed with milk is applied.                                                                                                                        |
| 12. | Brassica Campestris L.<br>Fam: Brassicaceae<br>L.N: Sarson<br>P.A: 1040            | Seed Oil | Eye      | Eyesight              | Oil is applied on toes before bathing.<br>Or oil is applied in eye also.                                                                                 |
| 13. | Calotropisprocera (mt.)<br>R.Br.<br>Fam: Asclepiadaceae<br>L.N: Akwan<br>P.A: 1852 | Leaves   | Ear      | Earache               | clarified butter applied on yellow leaves<br>and roasted after sometime, then extracted<br>out by crushing of leaves and extract<br>applied as eardrops. |
| 14. | Carthamus Tinctorius L.<br>Fam: Asteraceae<br>L.N: Kusun<br>P.A: 1756              | Leaves   | Nose     | Nasal<br>Hemorrhage   | Vegetable of leaves is suggested.                                                                                                                        |
| 15. | Cardiospermum<br>Nelicacabum L.<br>Fam: Sapindaceae<br>L.N: Khanphuti<br>P.A: 904  | Leaves   | Ear      | Earache               | Juice is used as eardrops.                                                                                                                               |
| 16. | Celosia Argentia L.<br>Fam: Amaranthaceae<br>L.N: Safed Murgan<br>P.A: 1788        | Seed     | Eye      | Eye<br>Problem        | Seed paste is applied.                                                                                                                                   |
| 17. | Cissus Quadrangularis<br>Fam: Vitaceae<br>L.N: Harjora<br>P.A: 961                 | Stem     | Nose     | Nasal<br>Hemorrhage   | Juice used as nasal drops.                                                                                                                               |
|     |                                                                                    | Stem     | Ear      | Ear Flow              | Juice used as eardrops.                                                                                                                                  |
| 18. | Cleome Viscosa L.<br>Fam: Cleomaceae<br>L.N: Pilahurhur<br>P.A: 1713               | Leaves   | Ear      | Earache               | Juice used as eardrops.                                                                                                                                  |
| 19. | Cleome Gynandra L.<br>Fam: Cleomaceae<br>L.N: Ujlahurhur<br>P.A: 1412              | Leaves   | Ear      | Earache               | Bruisedleaves boiled in sesamum oil and<br>extract out, oil used as eardrops.                                                                            |
| 20. | Coleus Ambonicus Loar<br>Fam: Lamiaceae<br>L.N: Pattajawan<br>P.A: 1561            | Leaves   | Eye      | Eye<br>Swelling       | Juice used as eye drops.                                                                                                                                 |
| 21. | Coriandrum Sativum L.<br>Fam: Apiaceae<br>L.N: Dhania<br>P.A: 1560                 | Plant    | Eye N.S. | Eye<br>Problem        | Juice is suggested as eye drops.                                                                                                                         |
| 22. | Crinum asiaticum L.<br>Fam: Amaryllidaceae<br>L.N: Sudarshan<br>P.A: 1592          | Seed     | Ear      | Earache               | Warm juice used as eardrops.                                                                                                                             |
| 23. | Cuminum Cyminum L.<br>Fam: Apiaceae<br>L.N: Jeera<br>P.A: 1112                     | Seed     | Eye      | Cataract              | Fine powder is used as collyrium.                                                                                                                        |
| 24. | Curcuma Longa L.<br>Fam: Zingiberaceae<br>L.N: Hardi<br>P.A: 1592                  | Rhizome  | Ear      | Earache               | Fine powder of rhizome is mixed with<br>alum powder in equal amount and is<br>applied on the ear.                                                        |
| 25. | Cynodon Dactylon (L.)<br>Pers.<br>Fam: Poaceae<br>L.N: Doob<br>P.A: 1709           | Leaves   | Nose     | Nasal<br>Hemorrhage   | Juice is used as nasal drops.                                                                                                                            |
| 26. | Cyperus Rotundus L.<br>Fam: Cyperaceae                                             | Tuber    | Eye      | Redness &<br>Swelling | Tubers grounded with goat urine used as<br>collyrium.                                                                                                    |

|     |                                                                               |                 |         |                                  |                                                                                           |
|-----|-------------------------------------------------------------------------------|-----------------|---------|----------------------------------|-------------------------------------------------------------------------------------------|
|     | L.N: Motha<br>P.A: 901                                                        |                 |         |                                  |                                                                                           |
| 27. | Datura Alba Nees<br>Fam: Solonaceae<br>L.N: Dhatura<br>P.A: 1671              | Leaves          | Ear     | Earache                          | Juice applied as eardrops.                                                                |
| 28. | Emblca Officinalis Gaertn<br>Fam: Euphorbiaceae<br>L.N: Amia<br>P.A: 962      | Dry Fruits      | Nose    | Nasal Hemorrhage                 | Fruit ground with clarified butter is applied on the head.                                |
| 29. | Erythrina Suberosa Roxb.<br>Fam: Papilonaceae<br>L.N: Pangra<br>P.A: 1143     | Bark            | Eye     | Eye Diseases<br>N.S              | Grounded bark is used.                                                                    |
| 30. | Ficus Glomerata Roxb.<br>Fam: Moraceae<br>L.N: Gular<br>P.A: 113              | Ripe Fruits     | Nose    | Nasal Hemorrhage                 | Fruit fried with clarified butter along with black pepper and loaf sugar is given orally. |
| 31. | Glorisa Superba L.<br>Fam: Liliaceae<br>L.N: Karihari<br>P.A: 1597            | Root            | Ear     | Ear Flow                         | Root extract mixed with lemon used as eardrops.                                           |
| 32. | Helicteres Isora L.<br>Fam: Sterculiaceae<br>L.N: Aithijothi<br>P.A: 2080     | Seed            | Ear     | Ear Flow                         | Seeds grounded with coconut oil, used as eardrops.                                        |
| 33. | Heliotropium Indicum L.<br>Fam: Boragineaceae<br>L.N: Hathisurh<br>P.A: 2016  | Plant           | Eye N.S | Eye Diseases                     | Plant juice is applied in eye.                                                            |
| 34. | Hyptis Suavealens(L) Poit<br>Fam: Laiaceae<br>L.N: Gangatulsi<br>P.A: 1888    | Plant           | Nose    | Nasal Hemorrhage                 | Plant juice is used as nasal drops.                                                       |
| 35. | Mangifera Indica L.<br>Fam: Anacardiaceae<br>L.N: Aam<br>P.A: 1040            | Unripe Fruits   | Ear     | Earache                          | Unripe fruit pounded mixed with mustard oil is used as eardrops.                          |
| 36. | Momordica Charantia L.<br>Fam: Cucurbitaceae<br>L.N: Karela<br>P.A: 1069      | Fruits          | Eye     | Night Blindness                  | fruit juice mixed with black pepper is applied in the eye                                 |
| 37. | Moringa Oleifera Lann.<br>Fam: Moringaceae<br>L.N: Munga<br>P.A: 1071         | Leaves          | Eye     | All Types Of Eye Diseases<br>N.S | Leaves juice mixed with honey in equal amount is used as collyrium.                       |
|     |                                                                               | Flowers         | Ear     | Earache                          | Flowers powder is put on the ear.                                                         |
| 38. | Musa paradisical L.<br>Fam: Musaceae<br>L.N: Kera<br>P.A: 1684                | Fruits          | Ear     | Ear Flow                         | Fruits juice is used as ear drops.                                                        |
| 39. | Ocimum Basillium L.<br>Fam: Lamiaceae<br>L.N: Jangli Tulsi<br>P.A: 1095       | Leaves          | Ear     | Low Hearing                      | Leaves juice used as ear drops.                                                           |
| 40. | Ocimum Sanctum L.<br>Fam: Lamiaceae<br>L.N: Tulsi<br>P.A: 1700                | Leaves          | Ear     | Earache                          | Leaves juice used as ear drops.                                                           |
| 41. | Oroxylum Indicum (L.) Vent<br>Fam: Bignoniaceae<br>L.N: Sonpatta<br>P.A: 1687 | Seed            | Ear     | Earache                          | Seed boiled with mustard oil and extracted oil used as eardrops.                          |
| 42. | Physalis Minima L.<br>Fam: Solonaceae<br>L.N: Jangli Makoi<br>P.A: 1116       | Leaves          | Ear     | Earache                          | Leaves juice mixed with mustard oil, used as ear drops.                                   |
| 43. | Putranjiva Roxburgii Wall.<br>Fam: Euphorbiaceae<br>L.N: Patohi<br>P.A: 1150  | Leaves & Fruits | Nose    | Nasal Hemorrhage                 | Decoction of leaves and fruits is given orally.                                           |

|     |                                                                                                |         |          |                        |                                                         |
|-----|------------------------------------------------------------------------------------------------|---------|----------|------------------------|---------------------------------------------------------|
| 44. | Ricinus Communis L.<br>Fam: Euphorbiaceae<br>L.N: Rend<br>P.A: 1154                            | Seed    | Eye      | Eye Pain               | Seeds oil is applied.                                   |
| 45. | Semicarpus Anacadium<br>Linn. F.<br>Fam: Anacardiaceae<br>L.N: Bhelawa<br>P.A: 2082            | Fruits  | Ear      | Earache                | Grounded fruit mixed with sesamum oil used as eardrops. |
| 46. | Sida Cordifolia L.<br>Fam: Malvaceae<br>L.N: Bariar<br>P.A: 960                                | Leaves  | Eye      | Eye Disease<br>N.S     | Leave juice is applied.                                 |
| 47. | Sphaeranthus Indicus L.<br>Fam: Asteraceae<br>L.N: Mundi<br>P.A: 1943                          | Plant   | Eye      | Eye Sight              | Distilled juice of plant is used.                       |
| 48. | Spondias Pinnata (L.f)<br>k.wz.<br>Fam: Anacardiaceae<br>L.N: Amra<br>P.A: 2060                | Leaves  | Ear      | Earache                | Leaves juice used as eardrops.                          |
| 49. | Taberaemontana Diveri<br>Cata (L.) Roem & Shim<br>Fam: Apocyanaceae<br>L.N: Tagar<br>P.A: 1944 | Latex   | Eye      | Eye Pain               | Latex mixed with edible oil and applied on the head.    |
| 50. | Tagetes Patula L.<br>Fam: Asteraceae<br>L.N: Genda<br>P.A: 957                                 | Leaves  | Ear      | Earache                | Juice used as eardrops.                                 |
| 51. | Tephrosia Purpurea (L.)<br>Pers.<br>Fam: Papilionaceae<br>L.N: Sarphonka<br>P.A: 902           | Seed    | Eye      | Cataract               | Fine powder of seeds used collyrium.                    |
| 52. | Terminalia Bellirica<br>(Gaerth.) Roxb.<br>Fam: Comberataceae<br>L.N: Bahera<br>P.A: 1398      | Seeds   | Eye N.S. | Eye<br>Diseases        | Seeds kernel mixed with honey are applied.              |
| 53. | Terminalia Chebula<br>(Gaerth.) Retz<br>Fam: Asteraceae<br>L.N: Genda<br>P.A: 957              | Fruits  | Eye      | Eye<br>Diseases<br>N.S | Fruit paste used as collyrium.                          |
| 54. | Zingiber Officianale<br>Roscoe<br>Fam: Zingiberaceae<br>L.N: Aadi<br>P.A: 1579                 | Rhizome | Ear      | Earache                | Hot juice used as eardrops.                             |

❖ Fam= Family, L.N= Local Name, N.S= Not Specified

**Table 2:** Plant Part and Disease Wise Analysis

| Ailment of Sensory Organ | Leaves | Fruits | Roots | Seeds | Stem | Bark | Flower | Tuber | Bulb | Rhizome | Latex | Plants |
|--------------------------|--------|--------|-------|-------|------|------|--------|-------|------|---------|-------|--------|
| Ear Flow                 | 2      | 1      | 1     | 1     |      |      |        | 1     |      |         |       |        |
| Earache                  | 11     | 2      |       | 1     |      | 1    | 1      | 1     | 2    | 2       |       |        |
| Low Hearing              | 1      |        | 1     |       |      |      |        |       |      |         |       |        |
| Nasal Hemorrhage         | 3      | 3      |       |       | 1    |      |        |       | 1    |         |       | 2      |
| Eye Swelling             | 1      | 1      |       |       |      |      |        | 1     |      |         |       |        |
| Redness of Eye           |        |        |       |       |      |      |        | 1     |      |         |       |        |
| Night Blindness          |        | 1      | 1     |       |      |      |        |       | 2    |         |       |        |
| Cataract                 |        |        |       | 2     |      |      |        |       |      |         |       |        |
| Low Eye Sight            |        |        | 1     |       |      |      |        |       |      |         |       | 1      |
| Eye Itching              |        |        | 1     |       |      |      |        |       |      | 1       |       |        |
| Eye Pain                 |        |        |       | 1     |      |      |        |       |      |         |       |        |
| Eye Diseases             | 2      | 1      |       | 2     |      | 1    |        |       |      |         |       | 2      |
| Total                    | 20     | 9      | 5     | 7     | 1    | 2    | 1      | 4     | 5    | 3       | 0     | 5      |

## Conclusion

From the earliest times, plants have provided man with means of healing. The use of different parts of several medicinal plants to cure a specific suffering and to combat a particular disease has been in vogue from ancient times. These have been documented as traditions and records of popular healing. The present author has been endeavored to reveal, in the forgoing text, how the plant was used medically in the past and how it is being used today in different traditions in new form. An attempt has been made to show how scientific research sometimes confirm the traditional and ancient literature on medicines of historical significance in country. Critical study of some traditional medicinal uses and the current conventional medicines are also pointed out warranting their probable origin. The subject matter is stressed with a view to communicate the excitement of medicinal knowledge gained from traditional evidence / studies over centuries and their culmination into the present development. Text has been divided into two tables; Table-1: Plant details with their uses, in the former, botanical name, family, local name followed by traditional documental information. Table-2: The plant parts and disease wise analysis.

The sources of information pertinent to the subject matter are included in the referenced.

## Recommendations

Local flora should be scientifically evaluated. Local people should be made aware about cultivation and conservation of medicinal plants. Treatment from medicinal plants should be educated regarding clinical aspects of plants.

More ethnobotanical survey should be conducted in this area as it contains enormous vegetational diversity, heterogeneous human population, ancient traditions and culture to establish the status of medicinal plants. Finally, protect the indigenous traditional knowledge, traditions and intellectual property (Posey, 1990).

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