

## Documentation of ethnomedicinal knowledge among the tribes of Achanakmar-Amarkantak Biosphere Reserve, Central India

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The paper provided ethnomedicinal uses of 33 plant species belonging to 33 genera and 26 families used by the tribal communities of Achanakmar- Amarkantak Biosphere Reserve (AABR), Central India. These plants are mostly used to cure seminal weakness, jaundice, antidote, kidney stones, skin disease, liver and spleen enlargements, etc. Part of the plant used, dosage, mode of drug preparation and administration in different ailments and diseases are described. Ethnomedicinal survey was conducted in the remote villages of AABR during the period 2007-2010. The plants species have been arranged alphabetically with their family, local name and ethnomedicinal uses.

**Keywords:** Ethnomedicinal knowledge, Tribal communities, Achanakmar-Amarkantak Biosphere Reserve, Central India.

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### Introduction

Achanakmar-Amarkantak Biosphere Reserve (AABR) was established on 11<sup>th</sup> March 2005, occupying an area of 3,835.51 sq km and located at the junction of hill ranges of Madhya Pradesh and Chhattisgarh. It lies between 20° 15'-20° 28' N latitude and 81° 25'-82° 5' E longitude (Plate 1). Geographically, AABR covers the part of three districts, viz. Anuppur and Dindori district of Madhya Pradesh and Bilaspur district of Chhattisgarh. The altitude varies from 400-1100 m above the mean sea level. The vegetation of the area is of subtropical type dominated mainly by sal trees. The mean annual temperature ranges between 21°C and 31°C. The average rainfall is about 1,900 mm which is received largely from South West monsoon. The soils of the area are usually lateritic, alluvial and black cotton type. The core area of Achanakmar-Amarkantak consists of the protected forest land while the buffer zone and the transition area are characterized by forests, agricultural and rehabilitated land and small suburban clusters. Twenty seven tribal and non-tribal communities inhabit 418 villages living on agriculture (including

production of medicinal plants) and non-timber products produced in the buffer zone and transition areas. The Achanakmar-Amarkantak Biosphere Reserve is inhabited by a number of tribes like Baiga, Gond, Bharia, Bhils, Oraon, Kol, Korku, Muria, Kanwar and

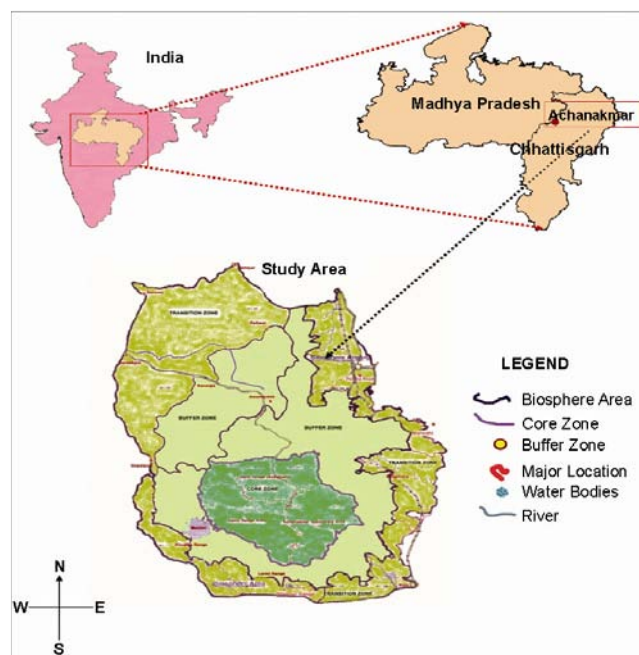


Plate 1 – Location map (not in scale) of Achanakmar-Amarkantak Biosphere Reserve

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Uikey who dwell in remote areas of the forest and uses plant resources in medicinal purpose. The tribals mainly occupy villages such as Achanakmar, Antaria, Bandha, Barati Nala, Chaparwa, Damgarh, Jagatpur, Januna Dadar, Kota, Thad Pathar, Sonkundi, etc.

A number of valuable research papers on ethnomedicinal plants of the Achanakmar-Amkantak Biosphere Reserve (AABR) have been published by various workers<sup>1-13</sup>. However, the vast store of ethno-medicinal information of these study areas has not been fully documented. In the present paper, an attempt has been made to present indigenous knowledge and uses of the wild plants which are used by local tribal communities for treatment of various ailment and diseases.

### Methodology

The ethnomedicinal data were collected during 2007-2010. Information on medicinal uses of various plants were gathered through oral interviews and

discussion with the local traditional healers who were regularly using the plants, especially older persons in the age group of 50-80 years (Plate 2 a-d). During the interviews, local plant names, usable plant part, preparation method for medicine, application mode, dosage and duration were recorded with the help of prescribed proforma. The herbarium specimens were prepared following the standard method<sup>14</sup>. Plants used by the tribal were identified with the help of Flora of Madhya Pradesh<sup>15-18</sup> and the identification was confirmed by consulting the herbaria of Botanical Survey of India, Central Regional Circle, Allahabad (BSA). These herbarium specimens are deposited at herbarium of the Forest Department, Research & Extension Circle, Rewa (M.P.).

The plants are arranged alphabetically according to their botanical name followed by family, local name, parts used and their mode of administration for different ailments/ diseases in Table 1.



Plate 2 – Tribal healers – a. Thekelal Jharia, Amarkantak, b. Bhaina Baiga, Januna Dadar, c. Thoonu Gond, Amarkantak, d. Deva Baiga, Januna Dadar

Table 1—Ethnomedicinal plants of Achanakmar-Amarkantak Biosphere Reserve (*Contd.*)

Botanical name	Family	Local name	Mode of administration
<i>Abrus precatorius</i> L.	Fabaceae	Ghughch	Leaf juice (15 mL) is given orally in case of snake-bite (Plate 3 a).
<i>Achyranthes aspera</i> L.	Amaranthaceae	Chirchita	Root juice (10 mL) is given twice a day for fifteen days to cure kidney stone. The root paste is applied externally against itching.
<i>Bauhinia semla</i> Wund.	Caesalpiniaceae	Thawar	Stem bark decoction is used to wash chronic ulcers twice a day till cure (Plate 3 b).
<i>Blumeopsis flava</i> (DC.) Gagnep.	Asteraceae	Vanrai	Root paste is locally applied in mouth to cure mouth ulcer twice a day till cure.
<i>Boswellia serrata</i> Roxb. ex Colebr.	Burseraceae	Salai	Seed powder (5 g) is given twice a day for one month for the treatment of tuberculosis (Plate 3 c).
<i>Byttneria herbacea</i> Roxb.	Sterculiaceae	Kamraj	Root powder (5 g) mixed with one cup milk and given twice a day for ten days to cure leucorrhoea and seminal weakness (Plate 3 d).
<i>Centella asiatica</i> (L.) Urban	Apiaceae	Mandoukparni	The whole plant decoction (10 ml) is given twice a day for five days to cure bronchial disorders.
<i>Ceriscoides turgida</i> (Roxb.) Tirveng.	Rubiaceae	Kharhar	Root paste is applied in tooth cavity to treat toothache twice a day (Plate 3 e).
<i>Cocculus hirsutus</i> (L.) Diels	Menispermaceae	Jaljamni	Fresh root juice (15 mL) is given orally in case of snake-bite.
<i>Cordia macleodii</i> (Griff.) Hook. f. & Thoms.	Boraginaceae	Dahiman	The bark decoction (10 mL) is given orally to cure stomach pain. Bark powder (5 g) mixed with spoonful sugar and given twice a day for fifteen days to cure leucorrhoea.
<i>Crinum asiaticum</i> L.	Amaryllidaceae	Sudarshankand	Tuber paste is externally applied on testies to remove swelling.
<i>Curculigo orchioides</i> Gaertn.	Hypoxidaceae	Kalimusli	Root powder (5 g) with milk (100 mL) is given twice a day for one month to cure seminal weakness (Plate 3 f).
<i>Curcuma amada</i> Roxb.	Zingiberaceae	Ama haldi	Rhizome paste is externally applied on body swelling. Rhizomes powder (5 g) is given twice a day for 10 days for blood purification.
<i>Cyanthillium cinereum</i> (L.) H. Rob.	Asteraceae	Sahdei	Leaf juice (15 mL) with equal amount of leaf juice of <i>Ocimum tenuiflorum</i> L. and given twice a day for 20 days to cure kidney stone.
<i>Dillenia pentagyna</i> Roxb.	Dilleniaceae	Karkat	Leaf paste is applied on the breast to cure breast cancer, twice a day till cure.
<i>Embelia basaal</i> (Roem. & Schult.) A. DC.	Myrsinaceae	Baibidang	Stem bark decoction (10 mL) is given twice a day for 15 days to cure arthritis.
<i>Ficus hispida</i> L. f.	Moraceae	Kathumar	Fruit powder (5 g) mixed with equal quantity of sugar candy and given twice a day for fifteen days to cure seminal weakness.
<i>Garuga pinnata</i> Roxb.	Burseraceae	Kekar	Fresh stem bark decoction is used to wash chronic ulcer twice a day for five.
<i>Gloriosa superba</i> L.	Liliaceae	Jhagdaha	Tuber paste is externally applied to cure leucoderma twice a day till cure (Plate 4. a).
<i>Hemidesmus indicus</i> (L.) R. Br.	Asclepiadaceae	Dudhi	Root powder (5 g) is given orally twice a day for two days to stop vomiting.
<i>Hygrophila auriculata</i> (Schum.) Heine	Acanthaceae	Talmakhana	The ash of whole plant (5 g) mixed with honey is given twice a day for one month to cure kidney and urinary bladder stone (Plate 4 b).

*(Contd.)*

Table 1—Ethnomedicinal plants of Achanakmar-Amarkantak Biosphere Reserve

Botanical name	Family	Local name	Mode of administration
<i>Leea asiatica</i> (L.) Ridsd.	Leeaceae	Hashiadaphar	Root powder (5 g) mixed with milk (100 mL) is given twice a day for 15 days for increasing vitality (Plate 4 c).
<i>Litsea glutinosa</i> (Lour.) Robinson	Lauraceae	Maida	Stem bark powder (5 g) mixed with cow milk (100 mL) is given twice a day for fifteen days to cure piles.
<i>Marsdenia tenacissima</i> (Roxb.) Moon	Asclepiadaceae	Chinahur	Root powder (5 g) is given twice a day till cure for the treatment of jaundice.
<i>Plesmonium margaritifera</i> (Roxb.) Schott	Araceae	Jhulukia	Fresh tuber juice (15 mL) is given orally in case of snake-bite.
<i>Soyimida febrifuga</i> (Roxb.) A. Juss.	Meliaceae	Rohina	Stem bark powder (5 g) is given twice a day for 20 days for the regulation of heart beats and stem bark powder (3-4 g) is also given once a day in empty stomach for 10 days in case of spleen and liver enlargement.
<i>Sterculia urens</i> Roxb.	Sterculiaceae	Kullu	Gum powder (5 g) with one spoonful sugar is given twice a day for 20 days to cure heart troubles (Plate 4 d).
<i>Thalictrum foliolosum</i> DC.	Ranunculaceae	Mamira	Root juice (10 mL) is given twice a day for five days to cure jaundice.
<i>Trichodesma indicum</i> (L.) R. Br. ex Lehm.	Boraginaceae	Aundhi	Whole plant paste is externally applied twice a day to cure body tumours.
<i>Trichosanthes tricuspidata</i> Lour.	Cucurbitaceae	Bagdor	Fruit paste is externally applied all over the body for the treatment of jaundice (Plate 4 e).
<i>Vanda tassellata</i> (Roxb.) Hook.f. ex G. Don	Orchidaceae	Band, Rasna	Root powder (10-15 g) mixed in a cup of cow milk is given orally twice a day for fifteen days to cure seminal weakness (Plate 4 f).
<i>Wendlandia tinctoria</i> (Roxb.) DC.	Rubiaceae	Tilwan	Leaf powder (15 g) mixed with 3 fruits of Pipali ( <i>Piper longum</i> L.) made into paste and paste is given once day for 10 days to cure liver enlargement.
<i>Zingiber roseum</i> Rosc.	Zingiberaceae	Jangliadrak	Fresh rhizome decoction (10 mL) mixed with powder of 4 fruits of pipali ( <i>Piper longum</i> L.) and given twice a day after food for fifteen days to cure bronchial disorders.

### Discussion

In the present study, it is observed that a total of 33 plant species belonging to 33 genera 26 families are used for ethnomedicinal purposes by tribal of Achanakmar-Amarkantak Biosphere Reserve, Central India. Out of 33 species, 13 species are herbs, 3 species are shrubs, 10 species are trees, 6 species are climbers and 1 species is epiphyte. These 33 plants are used in 22 types of different ailments and diseases. Four plants are used in seminal weakness, 3 plants used in snake bite, kidney stones, ulcers and jaundice each; 2 plants used in leucorrhoea, bronchial disorder, swelling, spleen and liver enlargement and heart problems each; rest 12 plants used in skin disease, tuberculosis, toothache, stomach

pain, blood purification, breast cancer, arthritis, leucoderma, vomiting, vitality, piles and tumor. Out of 26 families, Asteraceae, Asclepiadaceae, Burseraceae, Boraginaceae, Rubiaceae, Sterculiaceae and Zingiberaceae contributes two each and rest 19 families contributes one each. In terms of number of plant parts used, roots/ tubers/rhizomes are used in 16 ailments and diseases, followed by bark (6), leaves (4), whole plants (3), seeds (1), fruits (2) and seed and gum (1) each. The treatment mode is usually being oral, but in some cases paste, powder and decoction are used with some ingredients such as honey, water, milk and sugarcandy. The present ethnomedicinal information provided in this paper is compared with well known Indian medicinal literature<sup>19-22</sup> and found new, hence reported.



Plate 3 – Some ethnomedicinal plants – a. *Abrus precatorius* L.; b. *Bauhinia semla* Wund.; c. *Boswellia serrata* Roxb. ex Colebr.; d. *Byttneria herbacea* Roxb.; e. *Ceriscoides turgida* (Roxb.) Tirveng.; f. *Curculigo orchioides* Gaertn.



Plate 4 – Some ethnomedicinal plants – a. *Gloriosa superba* L.; b. *Hygrophila auriculata* (Schum.) Heine; c. *Leea asiatica* (L.) Ridsd.; d. *Sterculia urens* Roxb.; e. *Trichosanthes tricuspidata* Lour.; f. *Vanda tessellata* (Roxb.) Hook. f. ex G. Don

## Conclusion

Thus the present study yielded interesting data and provides scope for further studies to understand the scientific basis of the uses of crude drug. The plants included in present paper need to be scrutinized pharmacognostically as well as pharmacologically. The phytochemical analysis may also be undertaken for the scientific validation of the folklore claims. Besides, these plants uses can be added to the list of herbal drugs.

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