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Traditional Medicinal Plants used in the Treatment of Gastro-Intestinal Diseases found in Amboli Region of Maharashtra

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ABSTRACT

Traditional medicines form the basis of an accessible and affordable health-care regime and are gaining worldwide acceptability today. Various ethnomedicinal studies had been conducted in India to document the medicinal plants used by tribals in various regions. The region Amboli lies in the Sahayadri Hills of Western India bound with unusual floristic composition. This study was conducted to highlight the medicinal plants used by *kunbi* and *dhangar samaj* in the treatment of gastro intestinal diseases. Local healers, traditional practitioners of *kunbi* and *dhangar samaj* who have sound knowledge of medicinal plants were interviewed in a well-structured manner about the plants, its formulations, preparation methods and doses for treating gastro-intestinal diseases. Total 26 plants were reported to be used in the treatment of gastro intestinal diseases in Amboli region. Among them *Cassia fistula*, *Ervatamia alternifolia*, *Eulophia nuda*, *Glycosmis pentaphylla*, *Helicteres isora*, *Holarrhena antidysenterica*, *Leea indica*, *Terminalia chebula*, etc. were found to be most frequently used plants. Collected plant species were preliminarily identified with the help of regional taxonomist. Furthermore, *Ayurveda* classics were also referred for identification and documentation purpose. Potent plants species can be subjected for further research studies, which studies can lead to the development of new drug from the available natural resources.

KEYWORDS

Gastro-intestinal disease, Traditional remedies, *Ayurveda*, Amboli-Western Ghats, India



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INTRODUCTION

Plants have been the basic source of therapeutic agents since the existence of this universe. The tribal people who have century's old traditional knowledge are rather more informative about medicinal plants as they basically rely on plant resources for food and medicines. According to WHO, around 80% population of developing countries depends on traditional medicine for primary health care¹. It is estimated that approximately 85% of the folklore medicines used are plant based derivatives². Medicinal plants are thus indigenous treasure of global importance. Even our great sages of *Ayurveda* have emphasized the importance of forest dwelling communities stating that these communities are well versed with the identification and uses of the medicinal plants³. It is, therefore of paramount importance to collect the scattered knowledge about the medicinal plants and their uses from forest dwelling ethnic groups. But in recent decades this traditional knowledge is endangered with the extinction due to increasing popularity of modern medicine and lack of interest of young generations in plants and their use in health management system. Therefore documentation of this traditional knowledge is imperative to preserve this precious knowledge.

Gastrointestinal disease being the major treat faced by Indian population today due to changed environmental factors and lifestyle. Gastrointestinal disease (GI) refers the disease of gastrointestinal tract from mouth to anal region namely diseases of esophagus, stomach, intestine, the accessory organs of digestion, pancreas, gall bladder and liver. *Ayurveda* has categorized *desh* (region) into *jangala*, *anupa* and *sadaran desh*. *Anupa* region surrounds with dense forest, *snigdha taru* (soft plants), rich with plenty of river resources, heavy rainfall and has more moist content in atmospheric region. The people residing in this region are known to endure more with *Kapha-vata* predominant diseases⁴. Western Ghat, being a part of *Anupa desh*, all this factors contributes in giving higher ratio of *Mahasrotus vyadhi* (gastro-intestinal ailments) in this region. Environmental factors, irregular food habits because of erratic working hours, decrease fibre in the diet, spicy food and common habits of tobacco chewing, pan masala, etc. contributes to the occurrence of gastrointestinal diseases in Western Ghats. The region Amboli lies in the Sahayadri Hills of Western India and represents dense and diversified vegetation. GI ailments in this region have lead to substantial health hazards deteriorating the quality of life. The people here are largely dependent on their



traditional healing system for their primary healthcare and possess a vast knowledge on the medicinal uses of plants. So this study was undertaken to highlight the traditional use of some medicinal plants in the treatment of gastro-intestinal ailments in and around Amboli region of Maharashtra. 26 plants were reported to be most frequently used plants in treating gastro intestinal diseases in this region.

MATERIALS AND METHODS

Study site: The place *Amboli* is located in *Sawantwadi Tehsil* in *Sindhudurg* district of Maharashtra, India (Figure 1). It belongs to *Konkan* region and located 421km from state capital Mumbai. *Amboli* lies in the Sahayadri Hills of Western India, which runs parallel to the western coast of the Indian peninsula, located at an altitude of 690 m, receiving annual rainfall of about 750 centimeter^{5, 6}. It lies between 15o57'45"N and 73o59'52"E. Total area of *Amboli* is 5619 hectares. It is the last hill station in South Maharashtra before the coastal highlands of Goa and a relatively unexplored one, represents dense and diversified vegetation comprising a large number of trees, climbers, annual or perennial herbs and grasses. It comprises of a large population of tribal communities belonging to various ethnic groups like

Kunbi, Dhangar, etc. The spoken language here is *Marathi* and *Konkani*. The people inhabiting here rely on the plants for primary health care. They have accumulated enormous knowledge of the treatment through herbs and sustainable use of plant species available to them in their native lands.

METHODOLOGY

Data was collected from local tribals, traditional practitioners, old experienced, knowledgeable men and women of *Dhangar* and *Kunbi Samaj* known to use medicinal plants to treat diseases. The study was conducted in the year 2016 - 2018. A total of eight resource persons or traditional healers who have sound knowledge on medicinal plants were interviewed to get the ethno medicinal information through direct oral conversations. Also the other local healers using medicinal plants for their primary need in the treatment of diseases were interviewed in a well structured manner about the medicinal uses of plants. Data sheets for the documentation of folklore practices were prepared along with the consent letter. Only those supported with strong evidence were documented and subjected for taxonomic analysis. Identification of the plants was done by regional taxonomist and flora of



Maharashtra⁷. Herbarium\ Photography was done in the field for proper documentation. The *Ayurveda* classics were

referred for identification and documentation purpose.

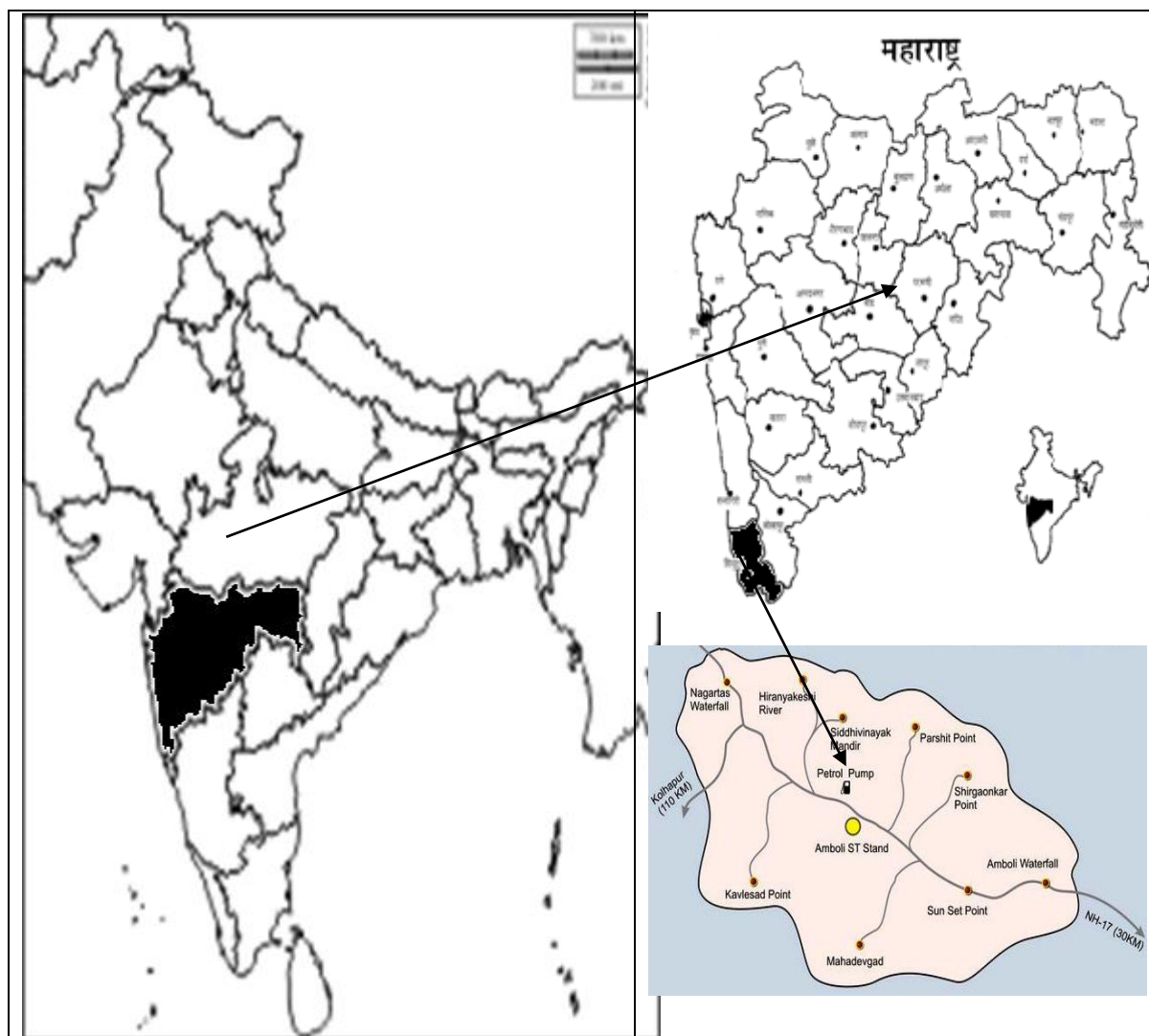


Fig. 1 Map of study area

RESULT AND DISCUSSION

Twenty six plants were reported to be used more frequently for the treatment of gastro intestinal diseases in *Amboli*. Table given below (Table 1) shows the documentation of the collected information. Most frequently use plant parts were root, bark, leaf, fruit and flower. Medicines given were usually of single plant part formulation or a

combination of multiple drugs either in the form of powder, juice, decoction and few were recommended to be chewed freshly. Administration was generally before breakfast in the morning or after meal twice daily. Treatment was supposed to be continued till recovery. Plants use in the treatment of gastro-intestinal diseases by local people inhabiting this area is provided



below with its mode of administration, doses and their references in *Ayurveda* classics. In this study, 10 gastrointestinal

ailments were found to be treatable with 26 plants.

Table 1 Plants used in gastro-intestinal diseases

| Local Name | Sanskrit Name | Botanical Name/ Family | Part Used | Diseases and dosage | Classical evidence ^{8,9} (B.N and N.A) |
|----------------------------|------------------|--|---------------|--|--|
| <i>Avala</i> | <i>Amalaki</i> | <i>Phyllanthus emblica</i> L. Phyllanthaceae | Fruit | Fruit powder and <i>shunti</i> (<i>Zingiber officinale</i>), both are mixed in same proportion and added with sugar. The mixture is taken with cold water in hyperacidity (<i>amlapitta</i>) | Fruit indicated in <i>daha</i> (burning sensation) and <i>pitta shoola</i> (pain) |
| <i>Bahava</i> | <i>Aragvadha</i> | <i>Cassia fistula</i> Linn. Fabaceae | Bark | 1] <i>Aragvadha</i> (<i>Cassia fistula</i>) bark powder added with curd, sugar and <i>jeeraka</i> (<i>cuminum cyminum</i>) powder is taken in jaundice (<i>Kamala</i>) 2] Bark powder is given thrice a day in stomach ache (<i>Udara shula</i>). | Fruit indicated in pain, skin disease, abdominal disorder (<i>Udara rog</i>) & <i>Kamala</i> (Jaundice) |
| <i>Kevan, Marud Shenga</i> | <i>Aavartani</i> | <i>Helicteres isora</i> L. Sterculiaceae | Fruit | 1] Fruit paste with water is given in diarrhea in children. 2] Fruit paste is given in flatulence and stomach ache in children. | Commentator Chuneekar of <i>B.N</i> mentioned its use in <i>Atisara</i> . Also has evidence for diarrhea, flatulence & abdominal pain. |
| <i>Dinda</i> | <i>Chhatri</i> | <i>Leea indica</i> (Burm.f.) Merr. Vitaceae | Immature leaf | 1] A mixture of immature leaves and <i>marich</i> (<i>Piper nigrum</i>) is taken in initial stage of cholera (<i>Visuchika</i>). 2] In stomach ache and stool passed with mucous discharge, immature leaf juice is taken with milk in the morning. | - |
| <i>Eranda</i> | <i>Eranda</i> | <i>Ricinus communis</i> L. Euphorbiaceae | Leaf | <i>Eranda</i> (<i>Ricinus communis</i>) leaf juice added with curd, sugar and <i>Jeeraka</i> (<i>Cuminum cyminum</i>) powder is given in jaundice (<i>Kamala</i>). | Indicated in <i>Yakrita vikara</i> (liver disorder). |
| <i>Gulvel</i> | <i>Guduchi</i> | <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook.f. & Thoms. Menispermaceae | Stem, Leaf | 1] A mixture of stem juice added with sugar is given twice daily in Jaundice. 2] Vegetable prepared from leaves is used as a food recipe in diet to improve digestion (<i>Ajeerna</i>) | Indicated in <i>Kamala</i> (jaundice). With <i>tikta rasa</i> supports for (<i>Ajeerna</i>) indigestion |
| <i>Harad</i> | <i>Haritaki</i> | <i>Terminalia chebula</i> Retz. Combrataceae | Fruit | 1] Fruit powder is taken with warm water in constipation (<i>Vibandha</i>). 2] Fruit powder with <i>sunthi</i> (<i>Zingiber officinale</i>) powder is taken with ghee at bed time in | Indication for <i>Vibandha</i> (constipation). |



| | | | | | |
|--------------------------|-----------------------------------|--|------------|---|---|
| | | | | stomach ache and in stool passed with mucous discharge. | |
| <i>Jambhu l</i> | <i>Jambu</i> | <i>Syzigium cumini</i> (L.) <i>Skeels.</i> Myrtaceae | Bark | Bark powder is boiled in 2 glass water and reduced to ¼th. Prepared decoction added with ghee and honey is given in diarrhea or in stool passed with bleeding and mucous discharge. | Indicated in <i>Rakta Atisara</i> (diarrhea) |
| <i>Peva</i> | <i>Kebuka</i> | <i>Costus speciosa</i> (Koen. Ex Retz.) Sm. Zingiberaceae /Costaceae | Root | A mixture of root paste is given internally with milk in bleeding piles (<i>Raktarsha</i>). | - |
| <i>Pandhara kuda</i> | <i>Kutaja</i> | <i>Holarrhena antidysenterica</i> (Linn.) Wall. Apocynaceae | Root, Bark | 1] Root pasted with water is given in a condition with vomiting and diarrhea (<i>Atisara</i>) in cholera. 2] Bark decoction is given twice daily in diarrhea (<i>Atisara</i>). | Indication for <i>Atisara</i> (diarrhea) & <i>Ama-vikara</i> . |
| <i>Panpoi, Neeli</i> | <i>Krishna Kamboji</i> | <i>Phyllanthus reticulatus</i> Poir. Phyllanthaceae | Bark | Thin bark is chewed in mouth ulcer (<i>Mukha-paka</i>). | Indicated in <i>Mukha-paka</i> . |
| <i>Paleas ana</i> | <i>Bijaka</i> | <i>Pterocarpus marsupium</i> Roxburgh Fabaceae | Bark | Decoction prepared by boiling bark of <i>bijaka</i> and <i>kumbhi</i> (<i>Careya arborea</i>) is given twice daily in jaundice (<i>Kamala</i>) | Indicated in <i>Pandu</i> (anaemia) |
| <i>Kumbha</i> | <i>Kumbhi</i> | <i>Careya arborea</i> Roxb. Lecythidaceae | Bark | Decoction prepared using bark of <i>Careya arborea</i> and <i>Kutaja</i> (<i>Holarrhena antidysenterica</i>) is given in hyperacidity. | Indication for hyperacidity |
| <i>Lajari</i> | <i>Lajjalu</i> | <i>Mimosa pudica</i> Linn. Mimosaceae | Root, Leaf | 1] Root decoction is given on empty stomach in piles (<i>Arsha</i>). 2] 4-5 leaves are eaten in hyperacidity. | Indicated in piles & <i>pitta</i> predominant diseases. (Leaf powder is used) |
| <i>Sonemukhichakanda</i> | <i>Malakanda</i> | <i>Eulophia nuda</i> Lindl. Orchidaceae | Rhizome | Rhizome is peeled off. Small cut slices are mixed with <i>jwari</i> (<i>Sorghum vulgare</i>) dough. Roti prepared is taken in diet for 2-3 days in hyperacidity (<i>Amlapitta</i>). | Indicated as appetizer & nourishing tonic. |
| <i>Nagalkuda</i> | - | <i>Ervatamia alternifolia</i> (L.) S.M. <i>Almeida</i> Apocynaceae | Root | Root or root bark pasted with water is given with goat urine in jaundice on empty stomach once daily in the morning. | - |
| <i>Palas</i> | <i>Palash</i> | <i>Butea monosperma</i> (Lam.) Taub. Fabaceae | Flower | Flower powder is given with honey in mouth ulcers (<i>Mukha-paka</i>) in small children. | - |
| <i>Galay</i> | <i>Vrikshamarich, Tiskhnaksha</i> | <i>Toddalia asiatica</i> (L.) Lam. Rutaceae | Leaf | 2-3 leaves are chewed in stomach ache, fever and to stimulate appetite. | - |



| | | | | | |
|-------------------------------|------------------------------|---|---------|--|---|
| <i>Menaki</i> | <i>Vaan Nimbuka</i> | <i>Glycosmis pentaphylla</i> (Retz.) DC. Rutaceae | Leaf | 1] Leaf juice is given on empty stomach early in the morning in vomiting & diarrhea in Cholera. 2] A mixture of leaf juice added with powder of peppers is given in indigestion (<i>Ajeerna</i>). Also leaf juice is rubbed over head & sole. | - |
| <i>Bhogna l</i> | <i>Vanya Tamraparni</i> | <i>Lobelia nicotianifolia</i> L. Campanulaceae | Root | Paste of root stock is externally applied in non bleeding piles (<i>Rakta-arsha</i>). | - |
| <i>Bhirand, Ratamb, Kokum</i> | <i>Vrikshamala</i> | <i>Garcinia indica</i> Choisy Clusiaceae | Fruit | Chutney (dietic recipe) of dry kokum fruit prepared by adding fresh curd and sugar is given in piles (<i>Arsha</i>). | Indication for piles (<i>Arsha</i>). |
| <i>Vaavdinga</i> | <i>Vaavdinga</i> | <i>Embelia tsjeriamcottam</i> (Roem & Schult) A. DC. Primulaceae | Stem | Stem pasted with warm water is given in jaundice in morning before breakfast in the dose of 4tsp in adults, 2tsp in middle age person and ½ tsp in young children. | Indication for <i>Kamala</i> (jaundice). |
| <i>Saptahakra substitute</i> | <i>Saptarangi</i> substitute | <i>Casearia esculenta</i> Roxb Salicaceae | Root | Root powder is given with milk or warm water at bedtime in jaundice (<i>Kamala</i>). | Indication for <i>Yakritavikara</i> (liver disorder). |
| <i>Sativana</i> | <i>Saptaparna</i> | <i>Alstonia scholaris</i> (Linn.) R. Br. Apocynaceae | Bark | In stomach ache (<i>Udara shula</i>), bark decoction is given. | Indication for stomach ache. |
| <i>Tripud</i> | <i>Tivati</i> | <i>Allophylus cobbe</i> (L.) Raeusch Sapindaceae | Root | Root powder mixed with honey is given in diarrhea (<i>Atisara</i>). | - |
| <i>Vekhand</i> | <i>Vacha</i> | <i>Acorus calamus</i> L. Araceae | Rhizome | Rhizome powder is given with buttermilk in stomach ache. | Indication for stomach ache. |

B.N - Bhavaprakash Nighantu, N.A - Nighantu Adarsha

It was found that *Apocynaceae* family tops the list followed by *Fabacea*, *Rutacea* and *Phyllanthaceae*. Of 26 plants, 2 plants were used in the treatment of *Ajeerna* (Indigestion), 4 plants in *Amlapitta* (Acidity), 4 plants in *Arsha* (Piles), 5 plants in *Udara shula* (Stomach ache), 1 in *Vibandha* (Constipation), 4 in *Atisara* (Diarrhea), 3 in *Visuchika* (Cholera), 3 in *Mukhapaka* (Mouth ulcer), 2 in Stool with

Mucous discharge and 7 in *Kamala* (Jaundice). The best number of local healers administers the drug in *churna* (powder) form followed by *kalka* (paste), *swarasa* (juice), *kashaya* (decoction) and also administer in *Aahariya* (diet) form. These factors counts in revealing the fact, the region Amboli receives the highest rainfall (approx. 7446 mm) so the local healers here dry the required plant species



and stored it for treatment purpose. Also utilization of plants in their fresh form by the tribal people enforces the presence of needed species nearby or at a close range of them. A majority of remedies are prepared in the form of *churna* preparations (33.3%), followed by *kalka* (23.1%), *swarasa* (16.6%), *kwath* (16.3%) and *Aahariya* form (10%). The most frequently used plant parts were bark and root in maximum i.e (24.13%), followed by leaf (20.16%), fruit (13.7%), stem and rhizome (6.76%) and flower (3%). Data regarding few plants was found to be mentioned in *Ayurveda* literature. Indications of plants *Costus speciosa*, *Ervatamia alternifolia*, *Butea monosperma*, *Toddalia asiatica*, *Glycosmis pentaphylla*, *Lobelia nicotianifolia* and *Allophylus cobbe* were new to the literature. *Anupaan* were also reported to be used along with the medications for eg. fruit pulp of *Aragvadha* given with milk in herpex. *Anupaan* are used for better bio-availability of consumed drugs. This provides the evidence of intelligence of the tribe and its proximity to *Ayurveda*. Other substance such as warm water, honey, sugar, milk, curd, ghee, and buttermilk were also reported to be used as *Anupana*.

CONCLUSION

This work emphasized the traditional medicinal plants used for the treatment of

Gastro-intestinal disease. It is a contributory work in *Ayurvedic* system of medicine and will also provide guide line for research work in this field. Data available will help to adequately evaluate or recommend their use in future. Herbal remedies uphold by the tribal peoples will help to innovate new research areas in pharmaceuticals and thereby producing new drugs to fight against diseases. Detailed chemical, pharmacological investigation and clinical trials of these traditional formulation and medicinal plants should be made to retain this valuable information for validation and future uses. Thus, it will be a clue to the development of new drug from the available natural resources.

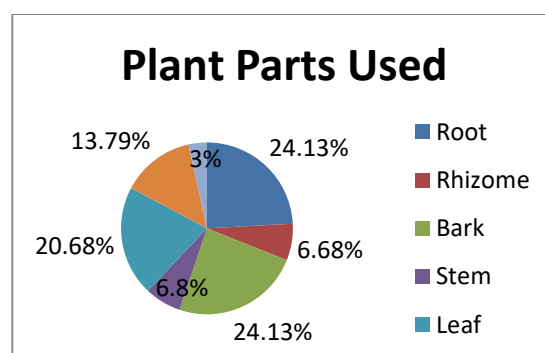


Fig 2 Medicinal plant parts used

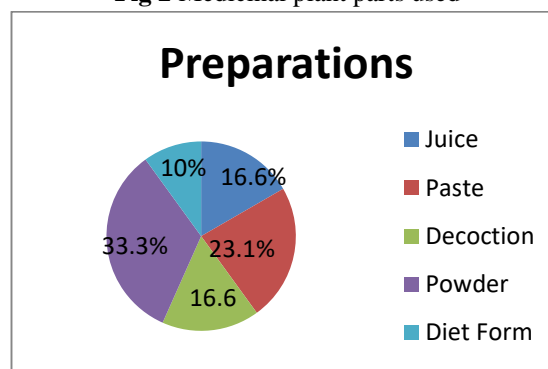


Fig 3 Mode of preparations used



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