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Medicinal Plants from Herbal Vendors Used in Ahmadnagar, Jalna and Aurangabad Districts of Maharashtra (India)

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Abstract: The survey was conducted during 2015-2018 in three districts *viz.*, Ahmadnagar, Jalna and Aurangabad of Maharashtra. This study highlights the use of medicinal plants used against various human afflictions. The aim of investigation is to collect information on applications of botanicals advised by herbal vendors for preparation of different types of medicines. These are being applied for treatment of about 50 human ailments. The paper sheds light on total 31 plant species belonging to 30 genera and 30 angiospermic families. All of these are being reported for the first time in India. The data accrued is compared with the classical literature to extract the newer claims for India. The vendor advised different plant parts, of which leaves, roots and seeds have more priorities in this order. Likewise, These parts are used to prepare various medicinal recipes, of which, powder and decoction are administered more commonly. Domestic substances are sometimes added, besides few parts of supplementary plants. The vendors are well acknowledged for the botanicals they advise for various human sufferings. Their knowledge is traditional and experience-based. However, these botanicals should be subjected for further scientific investigation to validate their claims on modern lines.

Keywords: Herbal Vendors, Ethnomedicine, Maharashtra.

INTRODUCTION

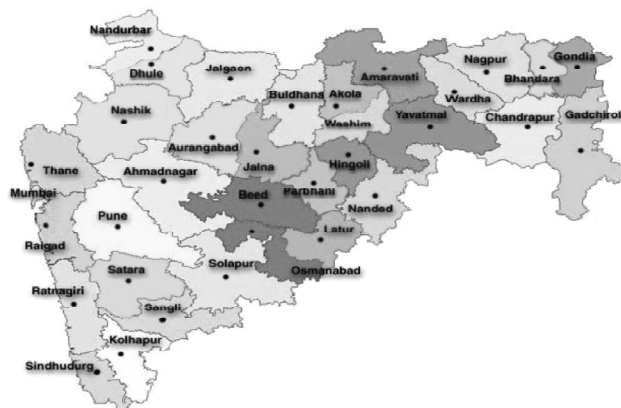
The prime reports of utilities of plants of Indian subcontinent are available since Vedic period. In modern period, the science of ethnobotany or utility

of plant kingdom was started particularly in India [1-4]. Of late, this activity was clearly initiated by E.K. Janaki Ammal as an official programme in the Economic Botany. Section of Botanical Survey of

India after Indian Independence [26]. Dr. S.K. Jain (Former Director, B.S.I.) extended extensive ethnobotanisation in central India[5-8]. He also geared up this activity in India by arranging workshops, conferences, training programmes and such other scientific pursuits on large scale. Today, we observe marathon running on this line in India. The progress and directions are summarised [26]. This review indicated that studies in ethnobotany especially of herbal vendors in India are far from satisfaction. A headway has been recently made on this line investigation particularly in state of Maharashtra [9-14]. The present paper forms a segment of ethnobotanisation of herbal vendors in Ahmadnagar, Jalna and Aurangabad districts of Maharashtra.

METHODOLOGY

Investigators visited different villages, towns, and cities of Ahmadnagar, Aurangabad and Jalna districts (Map-I) during 2015-2018. The information accrued is based on personal interviews, observations and experiences of vendors in the region. The vendors carry on their business on public or common places e.g. places of pilgrims, near bus-stands, railway stations, cross-roads, highways, weekly bazaars (hats) market-yards, near temples, etc. Regular visits are paid to gather the information by interviewing them by repeated queries to authenticate their claims. Plant/drug samples are purchased to identify them scientifically by using district, state, regional and national floras [15-20]. The plant species have been arranged alphabetically. The information is compared with classical Indian literature [21-25] to earmark new applications. Medicinal plants are arranged alphabetically with their botanical names, Family, Local names, Parts used, diseases treated along with formations, doses and durations. These are presented in the following with their names in some Indian language also.



Map I: State of Maharashtra showing Ahmadnagar, Jalna and Aurangabad districts

Ethnomedicinal Enumeration

1. *Abelmoschus esculentus* Linn. Moench. (Malvaceae)

Common name: M: Bhendi, H: Bhindi, S: Tindisha, bhenda,

- (a) Root powder of this species 2gm. is mixed with 1gm. candy sugar this is advised with water early morning to control diabetes.

Critical Note: Root powder used medicinally to treat diabetes reported for first time.

2. *Abrus precatorius* Linn. (Fabaceae)

Common name: M: Gunj, H: Gunja, Chirmi, S:Raktika.

- (a) Root paste is applied on joints against gout.
- (b) Seed powder and mustard oil one teaspoon each is boiled in a cup of water. Two drops of it are dropped in nostrils against scrofula.

Critical Note: Use of seed powder for scrofula is being reported for the first time.

3. *Abelmoschus moschatus* Medic. (Malvaceae)

Common name: M: Kasturi bendi, H: Latakasturi. E: Musk okra.

- (a) Leaf decoction of this species, about 5-10ml, with one teaspoon honey is advised

twice a day for about 4-5 days against whooping cough.

Critical Note: Leaves used against whooping cough are not reported in past literature.

4. *Acacia catechu* Linn.(Mimosaceae)

Common name: M:Khair, H:Khair, E:Black catechu

(a) Stem bark decoction is gargled twice or thrice a day to stop bleeding of gums.

(b) Bark is dried and pounded. Fine powder is sprinkled on the wounds twice a day in morning and evening till cure.

Critical Note: Use of stem bark powder for bleeding gums is reported in earlier literature, but the decoction of stem bark is new use of this plant.

5. *Achyranthes aspera* Linn.(Amarathaceae)

Common name: M: Aghada, H: Chirchira, S: Apamarg.

(a) Paste of inflorescence or root of this species is useful against scorpion sting.

(b) Roots of this plant with equal quantity of turmeric powder are ground and paste prepared is applied on nails, hands, leg fingers and on forehead. This helps to stop infection of small-pox.

Critical Note: Use of root for smallpox and leaves for removing thorn from feet are newly reported and new recipes are reported.

6. *Acorus calamus* L. (Araceae)

Common name: M:Vekhand, H:Bach, S:Vacha.

(a) Root powder two teaspoons with honey is useful to treat cough in case of children. It is also beneficial in case throat complaints.

Critical Note: Application of root in case of throat complaints is not reported in past literature.

7. *Aegle marmelos* (L.) Correa (Rutaceae)

Common name: M: Bel, H: Bel, S: Bilva.

(a) Leaf powder 3gm and two teaspoon honey if consumed twice a day for about one month, it helps to improve sperm debility.

Critical Note: Use of leaves for sperm debility is a new report.

8. *Argemone maxicana* Linn.(Papavaraceae)

Common name: M: Kate-dhotra, H:Bharband, S:Bramhadandi.

(a) Stem juice of Gulvel [*Tinospora cordifolia* (Willd.)Miers.] 10ml and seed oil of this species, about 8-10 drops is advised twice regularly for about five days to cure jaundice.

(b) Root about 2 or 3 inches long is ground finely. This powder is advised with a cup of water once only to treat prolonged menstruation.

Critical Note: The use of plant roots for menstruation problem is a new application.

9. *Azadirachta indica* L.(Meliaceae)

Common name: M:Kaduneem, H: Neem, Neemb

(a) Leaf juice with some jaggery is given with water twice a day for about eight days. This helps to reduce excessive body heat.

(b) Seeds are crushed and powder obtained is mixed with coconut oil. This oil is applied on head and after one hour it is washed. Same procedure is applied after two weeks to kill lice.

Critical Note: Leaf juice is used to reduce excessive heat from the body and seeds to kill hair lice are new reports.

10. *Bauhinia racemosa* Lamk. (Caesalpiniaceae)

Common name: M:Apta, H:Kachnal, Ashta, S:Svetkanchagna.

(a) Stem bark pieces about 4 inches are crushed and half of this is put in a cup of

water for about 10 minutes. Then one cup infusion is advised daily at morning and evening to control diarrhoea.

- (b) Flower powder, one teaspoon with water, is given at morning and evening to treat bleeding piles until cure.
- (c) Flower powder, about 2gm along with one teaspoon honey, is useful to cure cough and cold.

Critical Note: Application of flower for the treatment of bleeding piles and cough and cold are reported for the first time.

11. *Benincasa hispida* (Thunb.) Cogn.

Common Name: M: Kohala, H: Petha, S: Kushmanda, E: White gourd melon

- (a) Root powder, one teaspoon with luke warm water, is administered twice or thrice a day to treat asthma.
- (b) Small fruit is roasted in ash having live coal. It is wrapped by a cloth and then juice is extracted from it. Two drops of juice is dropped in each eye at morning for three days to cure jaundice.

Critical Note: Root powder for the treatment of asthma and cough is not reported in past

12. *Beta vulgaris* Linn.(Chenopodiaceae)

Common name: M: Beet, H: Chukandar, E: Beet root

- (a) Leaf juice, 2 drops, is dropped in nostrils against epilepsy.
- (b) Root decoction about 30ml, is advised before meals against bleeding piles. It is treated until cure.
- (c) Fresh leaves are ground and slurry obtained is applied to treat sprain.

Critical Note: Application of leaves on epilepsy, sprain and root for bleeding piles are unreported yet.

13. *Capparis sepiaria* Linn. (Capparidaceae)

Common name: M:Kanthar, H:Hensa E: Wild caper S: Kantari

- (a) Leaf juice, 5-10ml, is mixed in a glass of water. It is advised twice a day for about 5-7 days to kill intestinal worms.

Critical Note: Medicinal use of leaves on intestinal worms is a new application.

14. *Capparis spinosa* L. (Capparidaceae)

Common name: M:Wagati, H:Kabra. E: Caper

- (a) Leaf decoction is used to gargle once or twice a day to get relief from tooth-ache.
- (b) Roots and leaves are used to make slurry. The slurry is smeared on joints to cure rheumatism, inflammation and pain in joints.
- (c) Leaf juice, 5-10 ml, is also helpful to remove intestinal worms.

Critical Note: Use of leaves for tooth-ache, rheumatism and intestinal worms are not reported in past literature.

15. *Ceiba pentandra* (L.)Gaertn. (Bombacaceae)

Common name: M: Pandhari savar, Salmali, H: Safed simal, S: Sveta salmali.

- (a) Flower powder, about one teaspoon with two cups of water, is boiled until it reduces to an half of it. This decoction one teaspoon early at the morning is advised for about ten days against leucorrhoea.

Critical Note: Use of flowers in the treatment of leucorrhoea is not found in past literature.

16. *Catunaregam spinosa* (Thunb.)Thiruveng (Rubiaceae)

Common name: M:Gela, H: Mindpohal E: Mountain pomogranate S: Madan ,Shapaka

- (a) Fruit is rubbed on stone and slurry is obtained. It is smeared around the neck for at least seven days to cure goitre and tonsils. The period of application can be extended for month if needed.

Critical Note: Medicinal use of fruit for goitre and tonsillitis is not reported in past literature.

17. *Celastrus paniculatus* Willd. Celastraceae
Common name: M: Malkanguni, Jyotishmati, Kangli
(a) Seed powder, about half teaspoon, is added in 'Kheer' (a liquid sweet preparation from rice). This is advised against impotency.

Critical Note: Seeds for impotency and leaves for head-ache are not to be reported yet.

18. *Cyperus rotundus* L. (Cyperaceae)
Common name: M: Nagarmotha, H: Motha, E: Nut sedge grass
(a) Paste prepared using underground rootstock is smeared on joints against joint pains.
(b) Root stock is extracted and the extract, about 2-3ml, is useful as brain tonic.
(c) Rootstock extract is also advised to a pregnant woman for healthy development of foetus and to avoid risk of abortion.

Critical Note: Uses of rhizome for joints pain, brain tonic and for healthy development of foetus are new applications.

19. *Diplocyclos palmatus* L. Jeffrey (Cucurbitaceae)
Common name: M:Shivlingi H: Shivlinge, E lollipop climber.
(a) Seeds are powdered. This powder, 1-2gm, mixed with water for about one month, is administered for pregnancy.
(b) Leaves and fruits two fistful are ground. Juice is squeezed and applied on shoulders and legs twice a day to get relief from swellings and pain. It is treated until cure.
(c) Roots specially collected in 'Pushya nakshtra' and tied around wrist of a pregnant woman prior to delivery period for safe delivery.

Critical Note: Application of leaves and fruits for inflammation and roots for smooth delivery are new applications.

20. *Erythrina variegata* L. (Fabaceae)
Common name: M:Pangara, Hindi Pangara, E: Indian coral
(a) Leaf juice, two drops, is dropped in ear against ear-ache.
(b) Roots are tied using cotton cloth around waist of a pregnant woman for safe delivery.
(c) Leaves and fruits of Avala (*Phyllanthus emblica* Linn.) are used to obtain decoction in equal quantity for about 10-15ml is helpful to cure acidity.

Critical Note: Leaves used for earache, acidity and use of roots for safe delivery are new applications.

21. *Feronia limonia* (Linn.) (Rutaceae)
Common name: M: Kauth, H: Kaith, S: Kapitha, E: Wood apple
(a) Extract obtained from unripe fruit, about 5-10ml, is advised orally to treat asthma till cure.
(b) Paste prepared using fruits of this taxon and that of Khirni (*Manilkara hexandra* Roxb.) is smeared on skin to cure skin infections.
(c) Seed oil of this species is also helpful to cure skin infections.
(d) Thorns of this species are powdered. This powder, 2-4gm, is administered with a glass of water to a patient suffering from menorrhagia.
(e) Leaf juice, four teaspoon and cloves (*Piper longum* Linn.) about 2gm are mixed thoroughly. It is advised with one teaspoon honey to a person suffering from asthma and hiccough.

Critical Note: Uses of fruit against asthma, skin disorder, thorns for menorrhagia are unreported in past literature.

22. *Ficus hispida* Linn.f. (Moraceae)

Common name: M: Bhuiumber, Kali umbar, H:Daduri.

- (a) Root juice, about 5-10 ml is advised twice a day for about 4-5 days against fever.
- (b) Dried fruits powder, 20gm with two teaspoon honey and one teaspoon sugar, is mixed thoroughly. This mixture is advised once for about 5-8 days to control excessive bleeding during menstruation.

Critical Note: Application of root juice against fever and use of fruit against excessive bleeding are new reports.

23. *Gmelina arborea* Roxb. (Verbenaceae)

Common name: M: Shivan, H:Gambhari, S:Bhadraparni

- (a) Fruit powder one teaspoon with equal quantity of sugar is advised with a cup of cow's milk early morning. It checks sperm debility.
- (b) Decoction of dry or fresh fruits of this species and equal quantity fruits of Umbar (*Ficus racemosa* Linn.) is prepared. This decoction, about 20-40ml, is advised twice a day against urticaria.

Critical Note: Application of fruit for sperm debility and urticaria are being reported for the first time.

24. *Indigofera tinctoria* Linn.(Fabaceae)

Common name: M:Neel H:Nil E: Indigo

- (a) Root or leaf decoction, about 20ml, is taken orally twice a day for about 10 days against liver disorder.

Critical Note: Use of roots for liver disorder forms a new report.

25. *Iscahemum pilosum* (Klein ex Willd.) Wt. (Poaceae)

Common name: M:Kunda

- (a) Some roots are put in eight cups of water. This is boiled until it reduces upto two cups. This decoction, one cup is at morning and evening is advised for seven days to treat urine stones.

Critical Note: Use of roots against urinary stones is a new report.

26. *Lagenaria siceraria* (Molina)Standl. (Cucurbitaceae)

Common name: M:Dudhya, H:Tumbi E: Bottle-gaurd

- (a) Seed powder two grams and equal quantity of 'Shilajit', seeds of 'Chirayata (*Swertia chirayata* L.) are mixed thoroughly. This is advised with chilled water at empty stomach to improve blood purification.

Critical Note: Uses of seed powder of this species and plant parts of other ones for blood purification are not documented in past literature.

27. *Melia azadirach* Linn. (Meliaceae)

Common name: : M: Bakam H:Vilayti nimb, S:Bakayan

- (a) Stem bark powder (20gm) is mixed in two litre water. It is boiled till it remains 750 ml. Some jaggery (3-4gm) is added in it. This decoction (20-50ml) is advised once a day for about three days to get relief from intestinal worms.
- (b) Seed paste or seed oil is applied on infected part of skin to cure leprosy till cure.
- (c) Stem bark is boiled in four cups of water. It is boiled until it remains one cup. This decoction is administered at morning and evening for three days against fever.

- (d) Leaves are washed properly, ground finely, and juice is obtained. Half cup of it is given to a patient daily at morning when stomach is empty to treat tuberculosis until cure.

Critical Note: Stem bark used against intestinal worms, seeds for leprosy, bark for fever, leaves for the treatment of tuberculosis are not noticed in past.

28. *Mitragyna parvifolia* (Roxb.) Korth. (Rubiaceae)

Common name: M:Kalamb,H:Kaim, Kalmi, E: Kaim, S: Vitnah

- (a) Stem bark powder, a teaspoonful with a cup of milk, is given orally at empty stomach at early morning to regulate normal blood pressure.

Critical Note: Stem bark used to control of blood pressure is a new application.

29. *Mucuna pruriens* (Linn.) (Fabaceae)

Common name: M:Kuhili, Khaj-kuhili, H:kevanch, Kounch

- (a) Leaf paste is smeared on forehead to get relief from headache.
- (b) Root paste mixed in water is smeared on stomach to get relief from ascites.
- (c) Decoction is prepared from seeds of Udid (*Vigna mungo* L.) roots of Castor (*Ricinus communis* L.) Bala (*Sida cordifolia* L.) a pinch of asfoetida. It is applied to treat paralysis.
- (d) Extract of leaves and seeds, 2ml twice a day, is useful against cervical spondylitis.
- (e) Powder of seeds, one teaspoon, is advised with milk for about 8-10 days to treat rheumatism.

Critical Note: Leaves for headache, spondylitis, root for ascites and seeds in combination with other plant part for paralysis and rheumatism are new applications.

30. *Thespesia populnea* (L.) Soland.ex Corr. (Malvaceae)

Common name: M: Paras-bhendi, Paras pimpal, H: Parsipu, Gajadanda, S: Gardha-bhanda.

- (a) Seed powder, 2gm with a cup of milk, is consumed once daily for 21 days. It is helpful for pregnancy.
- (b) Dry fruit powder of this plant 2gms with a glass of water is drunk to control blood pressure.

Critical Note: Application of seeds for pregnancy (Infertility) and fruit for the control of blood pressure is unreported in classical literature.

31. *Tinospora cordifolia* (Willd.) Miers. (Menispermaceae)

Common name: M: Gulvel, H: Giloy, Guduchi, S:Amruta, E:Tinospora

- (a) Leaves are boiled in a cup of water. A teaspoon jaggery is added in it. This decoction is advised early at morning to treat constipation and cough.

Critical Note: Use of leaves to treat constipation and cough is yet unreported.

RESULTS AND DISCUSSION

Extensive ethnobotanisation during 2015-2018 in Ahmadnagar, Jalna Aurangabad districts of Maharashtra state yielded fruitful results. Our investigation pertained particularly to herbal vendors who conducted their business traditionally at some common places and on social events throughout a year. Their repeated interviews queries and authentication of data accrued revealed several plant taxa useful to combat various human afflictions, of which 31 different plant species belonging to 30 genera of the 30 angiospermic families are projected in this communication. These claims have been comparatively studied with the classical published literature from India [21-25] All these plant species

are being communicated for the first time from Indian territory. The information obtained is first – hand and original. Such a cross- cultural comparative study help authenticate the traditional claims. The medicinal recipes are suggested in the form of powder (17), decoction (11), juice (09), paste (07) , extract(05), slurry (03), infusion and oil (01each). The figures in the parenthesis stand for total use-reports communicated presently in this paper. This investigation obviously indicates that powder and decoction are more commonly employed to administer for combating different human sufferings, while other recipes are in the order as stated. Likewise, different plant parts are used in order: roots (16), leaves (15), fruits and seeds (11each), stem-bark (06), root-stock (03), flowers (02), stem and thorns (1each). This points out to a fact that underground parts and leaves constitute a major segment of use-reports, while other plant parts are in the order as stated. While preparing recipes and doses some domestic substances are also integrated in them e.g. jaggery, honey, sugar, mustard oil, coconut oil, cow's milk, asafoetida, besides 'shilajit'.

The science of ethnobotany is interdisciplinary in approach and expanding in its scope and concept. As stated elsewhere, it made a clear headway after Indian independence and then geared up satisfactorily by the Indian botanists. The literature resume indicated that few aspects of ethnobotany has perforce been ignored in the last few decades, one such area of research in ethnobotany is the study of herbal vendors who carry on their traditional family business of selling botanicals of medicinal significance. Sometimes, their claims are thought doubtful but when they are interviewed personally time and again, the doubts are cleared and one is certainly convinced that their knowledge and wisdom is traditional and experience-based. There is no compromise on their side. It is, however, always necessary to validate their claims on modern scientific lines. The potential efficacy can be tested from the perspectives of clinical, biological activities and

chemical trials, etc. which is also essential in case of classic plant drugs. This is so because the modern man demands scientific explanations of the medicinal preparations and this obviously as it should be. Presently, much emphasis is being given all over world on ethnomedicine. In such circumstance, it is imperative to have extensive in-depth investigation especially of the aspect such as the present one. The present authors are particularly paying attention on this lacuna in the state of Maharashtra. This is important especially when the rate of acculturation is putting long strides and the plant-wealth in a country like India is being depleted for obvious reasons. It is a dire necessity to conserve the traditional wisdom for well-being of mankind in future.

Apart from principal plant species used, parts of other species are also added in different preparations e.g. *Vigna mungo*, *Ricinus communis*, *Sida cordifolia*, *Swertia chirayata*, *Ficus racemosa*, *Manilkara hexandra*, *Phyllanthus emblica*, *Tinospora cordifolia*, *Piper longum* and *Curcuma longa*.

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