

Some Ethnomedicinal Preparations Used by Tribals in Rajasthan

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Abstract: Resurgence of public interest in the ethnomedicinal practices in both the developing countries in increasing exponentially. As a result, the trade of ethnomedicinal preparations in the regional and global market is also growing significantly. The rich biodiversity and associated knowledge system particularly in Rajasthan is well known. The loss of local traditions and associated knowledge system, ethnomedicine, is resulting in malnutrition among rural people. Twenty-five plant species were utilized by tribal and traditional communities for ethnomedicinal purposes in the treatment of various ailments, predominantly abdominal disorders, body pain, cough and cold, cut and wounds, diarrhoea, fever, scorpion sting, and toothache. Recognition of native healers and the time tested ethnomedicinal practices are very valuable in modern times.

Keywords: Ethnomedicine, Herbal, Preparations, Rajasthan, Tribal.

INTRODUCTION

Ethnomedicine pertains to the scientific investigation of customary medical procedures that involve the cultural understanding of health, sickness, and disease, as well as the approach to obtaining healthcare and therapeutic techniques. The term 'ethnomedicine' is used in academic literature with varying interpretations. The term 'medicine' in the English language lacks precision and encompasses a broad range of related definitions. These definitions pertain to various fields of knowledge, such as health, the human body, causes of illnesses, preventive measures, diagnostic techniques, and therapeutic interventions (Singer, 2011). When a plant is referred to as medicinal, it indicates that it contains one or more substances that have a positive effect on the physiology of ill mammals and have been historically utilised by humans for this purpose (Shanjida *et al.* 2014).

According to Vedavathy (2003), ethnomedicine is considered the precursor to other medical systems, including Siddha, Unani, Ayurveda, nature cure, and modern medicine. In numerous developing nations, a substantial proportion of the populace relies on conventional practitioners and their repertoire of medicinal plants to meet their healthcare needs. The utilisation of ethnomedicines is on the rise as individuals increasingly embrace natural methods for maintaining their health. These remedies have been employed since ancient times. Herbalism has been utilised as a form of medicinal treatment by various cultures throughout history (Zita, 1997). According to Jain, ethnobotany pertains to the examination of the complete natural and customary connections between human beings and plants. Since the 20th century, there has been a growing concern regarding the potential loss of traditional knowledge. Initially, the destruction of forests, which serve as the natural habitat for indigenous communities and the environment, has resulted in the loss of traditional knowledge that has evolved, thrived, and persevered in these ecosystems. Ethnobotany has become an organized science in a short period of time due to the rapid acculturation that has impacted ethnic culture and the renewed interest in natural foods and drugs. This knowledge was transmitted through generations, primarily through oral tradition and to a certain degree through petroglyphs and other forms of rock art (Anon. 1984).

Over the past thirty years, there has been a significant advancement in the study of ethnomedicinal plants. The global inclination towards the use of natural plant-based remedies has resulted in a substantial demand for knowledge regarding the characteristics and applications of medicinal plants. The retention of ethnomedicinal knowledge pertaining to the flora and fauna is a valuable asset possessed by individuals within tribal communities, bestowed upon them by a higher power. Distinct ethnomedicinal knowledge is possessed by each tribal group, which may be assimilated or forfeited upon the demise of the knowledgeable individual within the tribe.

Extensive research on medicinal plants has been conducted in the state of Rajasthan. Joshi (1995) provided a comprehensive account of the ethnomedicinal practices of the indigenous people residing in Rajasthan. In a study conducted by Katewa and Jain (2006), it was found that *ca.* 390 species of medicinal plants were utilized by the indigenous population of Rajasthan for medicinal purposes. The research was primarily conducted in the southern region of Rajasthan. Sen (1999) conducted a study on the home remedies utilized by various

communities in Jaipur district, while Shekhawat and Batra (2006) conducted a similar study in Bundi district. Agrawal (2017) conducted research on the ethnobotanical aspects in Alwar. In 2009, Kumar conducted a study on the ethnomedicinal plants found in the Jaisalmer district. The ethnomedicinal plants of Karauli district were documented by Meena *et al.* (2003). The current state of research on ethnomedicinal plants in Rajasthan is limited, indicating a significant opportunity to investigate the traditional medicinal practices employed by the local population.

This study aims to investigate the significance of ethnomedicinal plants and their utilization by indigenous communities in Rajasthan. The local communities possess a wealth of knowledge regarding the utilization of plant-based traditional medicines in herbal and folk remedies.

MATERIALS AND METHOD

A series of surveys were carried out within the rural communities located in the interior regions. The data were obtained through a combination of interviews, observations, and participation in the subjects' activities. Herbarium sheets were created for all plant specimens gathered from the study location. The identification of these specimens was carried out using the floras of Bhandari (), Duthie (1903), and Cooke (1901).

Indigenous communities possess their own medicinal practices and remedies that have demonstrated efficacy in treating common ailments. In the field of medicine, various plants have been identified as potential sources of therapeutic agents. These plants are utilized to create medicinal concoctions that have demonstrated significant efficacy in treating various diseases. The transmission of medicinal knowledge occurs inter-generationally. Females possess significant expertise in the field of conventional medicine. The indigenous flora utilised by the inhabitants of Rajasthan are enumerated in the present work.

RESULTS AND DISCUSSION

Taxa are alphabetically arranged. The botanical name of the species is followed with family name, vernacular name, part used, information on ethnic uses and notes.

1. *Abelmoschus esculentus* (L.) Moench

Family: Malvaceae

Vernacular name:

Part used: Roots, Fruits

Usage: The ingestion of root powder with sugar has been purported to enhance sexual potency, alleviate impotence, and prevent the involuntary discharge of semen through urination. The oral consumption of a decoction made from unripe fruits, along with sugar, is used as a treatment for syphilis.

2. *Abelmoschus moschatus* Medik.

Family: Malvaceae

Vernacular name:

Part used: Leaves

Usage: Application of a paste made from leaves to alleviate the symptoms of a wasp sting. The ingestion of leaves prepared as a vegetable along with gram pulse for a duration of one month is a treatment method for Nyctalopia.

3. *Acalypha indica* L.

Family: Euphorbiaceae

Vernacular name:

Part used: Leaves, Root

Usage: An oral administration of leaf or root extract is provided to patients with diabetes. Tablets are produced from a paste derived from the roots, and a single tablet is consumed on a daily basis before eating to serve as a laxative and prevent the occurrence of constipation and colic. A green leaf paste poultice is applied to the lower abdomen to alleviate spasmodic urinary retention. The ingestion of root powder along with milk is believed to possess therapeutic properties for the treatment of bronchitis, pharyngitis, and pneumonia.

4. *Achyranthes aspera* L.

Family: Amaranthaceae

Vernacular name:

Part used: Root, Stem

Usage: The application of a paste made from the roots onto the forehead is believed to alleviate symptoms of headache. The utilization of the root and stem as a dental hygiene tool is believed to aid in the prevention of dental caries, swollen gums, and pyorrhea, while also promoting tooth strength. The application of crushed root between the teeth is a traditional remedy for alleviating toothache. The root is subjected to combustion with tobacco leaves, and the resulting smoke is inhaled by individuals suffering from asthma. A decoction derived from the roots has been observed to exhibit therapeutic effects against cough, cold, and typhoid fever. Women consume orally the root powder as a remedy for leucorrhoea. A topical application of root paste is administered for the treatment of scabies. Boiling the root in water and using it for bathing is a method employed to alleviate itching caused by *Mucuna* pod exposure. A mixture of crushed leaves and jaggery in a ratio of 3:1

is formed into 5-6 pills, which are administered orally for the treatment of thorn injuries. The ingestion of seed paste along with milk has been observed to alleviate symptoms of dysentery. A preparation of seeds boiled with milk and sugar is consumed as a tonic.

5. *Albizia lebbbeck* (L.) Benth.

Family: Fabaceae

Vernacular name:

Part used: Leaves, Flowers, Bark, Seeds

Usage: The infusion derived from the flowers and leaves is utilized as a gargle to treat weakened and spongy gums as well as chronic pharyngitis. The stem bark is boiled in water and used as a gargle for treating pyorrhoea and toothache. The application of seed paste to the eyes is believed to be a potential treatment for cataracts. A traditional remedy for cataract involves burning seed paste wrapped around a cotton wick and collecting the resulting soot in an earthen pot. This soot is then applied daily to the eyes.

6. *Allium cepa* L.

Family: Amaryllidaceae

Vernacular name:

Part used: Leaves, Bulb, Seeds

Usage: The application of 2-3 drops of juice extracted from the bulb or leaf is a common remedy for alleviating ear pain. The application of leaf juice is utilised as a remedy for toothache. The application of bulb juice to the eyes is believed to have medicinal properties that can alleviate symptoms of conjunctivitis. It is additionally applied topically to the forehead, soles of the feet, and palms of the hands for the treatment of heatstroke, as well as for the management of scorpion stings and insect bites. The application of roasted bulb or a paste made from bulb mixed with Hookah water is a local remedy for scorpion stings. A poultice consisting of a mixture of crushed bulb and turmeric powder is applied and secured over a sprain. A paste derived from seeds is utilised for the treatment of dental caries. A mixture of bulb paste, *Trachyspermum ammi* seed powder, and dried *Moringa oleifera* pods is subjected to boiling in whey and consumed as a remedy for hypotension.

7. *Asparagus racemosus* Willd.

Family: Asparagaceae

Vernacular name:

Part used: Flowers, Leaves, Roots

Usage: The consumption of root powder with milk is believed to have lactogenic properties and may enhance sexual potency. The ingestion of the root is believed to possess medicinal properties that alleviate symptoms of gastrointestinal discomfort. Locally applied boiled and crushed roots and leaves are utilised for the treatment of boils. Paste of tuberous roots is taken with water or milk as growth tonic, to increase sexual potentiality and decrease chances of abortion, to improve digestion and stimulate appetite, to treat convulsions and chronic dyspepsia. Patients suffering from jaundice and gall bladder stones consume a type of porridge made from rice and root extracts, commonly known as gruel. A daily dose of 4-8 ml of fresh root extract with sugar is recommended as a beneficial health tonic. The consumption of flowers prepared as a vegetable is believed to have tonic properties.

8. *Balanites aegyptiaca* (L.) Delile

Family: Zygophyllaceae

Vernacular name:

Part used: Fruits, Seeds

Usage: The ingestion of roasted kernel, fruit pulp, or fruit powder has been observed to have a curative effect on cough. Ingestion of powdered roasted kernels in combination with jaggery is believed to alleviate symptoms of cough. The ingestion of mesocarp and kernel has been found to alleviate gastrointestinal ailments. A roasted kernel is ground on a stone and mixed with water. This mixture is then combined with cow's ghee to create an ointment that is used to treat boils and pimples. A mixture of roasted kernel powder and clarified butter (ghee) is topically applied as an ointment for the treatment of boils. A mixture of wood/kernel ash and sesame oil is topically applied to wounds for complete wound healing. A mixture of fruit pulp paste and fuller's earth is topically applied to the scalp as a remedy for hair loss. A paste derived from seeds or fruits is employed as a remedy for foot ulcers and abscesses. Seed oil is utilised for wound healing purposes.

9. *Barleria prionitis* L.

Family: Acanthaceae

Vernacular name:

Part used:

Usage: The pulverisation of 2-3 leaves has been observed to possess curative properties for cough, diarrhoea, and injuries caused by thorns. Locally tied warmed leaves have been found to alleviate symptoms of stomach discomfort. A decoction of *Cuscuta reflexa* leaves is utilised for the alleviation of bodily discomfort by means of topical application. The utilisation of a tender twig as a toothbrush has been observed to alleviate symptoms of swollen gums and toothache. A mixture of root paste and goat milk is a potential treatment for rheumatic fever. A mixture of powdered root, stem, or leaves and cow milk has been found to be an effective remedy for dropsy and liver congestion.

10. *Boerhavia diffusa* L.

Family: Nyctaginaceae

Vernacular name:

Part used: Roots, Stem, Leaves

Usage: An orally-administered mixture of root paste, water, and sugar is utilized as a treatment for stomachache and vomiting. An oral administration of a mixture of pounded root and black pepper, along with candy, is believed to have a cooling effect on the body during the summer season. The roots are pulverised and subjected to boiling with cloves, following which a dense paste is topically administered to areas affected by boils and pimples. The utilization of extracts obtained from the leaves, stems, and roots of a plant is employed as a remedy for edoema.

11. *Butea monosperma* (Lam.) Kuntze

Family: Fabaceae

Vernacular name:

Part used: Twig, Leaves, Seeds, Bark, Gum, Roots

Usage: The utilization of a tender twig as a toothbrush is a traditional remedy for alleviating toothache. The application of boiled or fresh leaves coated with oil, heated and locally bound, is a traditional remedy utilized for the alleviation of joint pain and colic. A mixture of leaf ash and oil is topically applied to inflamed skin for expedited wound healing. A topical application of seeds that have been pounded with lemon juice is utilized for the treatment of ringworm. The ingestion of powdered seeds serves as an anthelmintic and laxative. According to reports, stem bark ash exhibits diuretic and laxative properties. The stem bark decoction is employed as a gargle in the treatment of stomatitis and pharyngitis, and as a topical application to heal ulcers. The finely ground stem bark is ingested with cow milk as a preventative measure against female infertility and as a tonic for the treatment of male impotence. The process of soaking wheat grains in exudates of stem, followed by drying and powdering, is used to prepare a sweet local delicacy called ladoos. These ladoos are consumed for the alleviation of lumbago. The powdered or boiled form of the locally known "Kamarkas gond" gum is traditionally consumed with milk in the morning to alleviate symptoms of menorrhagia and regulate body temperature. A concoction of root extract and ghee is combined with wheat flour and roasted to create a confection known as ladoos, which are traditionally consumed during the summer months to mitigate the risk of heatstroke.

12. *Capparis sepiaria* L.

Family: Capparaceae

Vernacular name:

Part used: Leaves, Roots,

Usage: A mixture of 2-3 crushed leaves along with black pepper and cloves is ingested as a remedy for colic. A topical application of root paste is utilised as an ointment for the treatment of boils and pimples. A mixture of pounded root and honey is applied as a traditional remedy for cataract treatment by being used as kajal in the eyes. A poultice made from the crushed roots and juvenile leaves of *Capparis decidua* is topically applied to treat styes. A poultice made from the crushed roots of *Datura innoxia* and *Nerium oleander* is utilised as a remedy for insect bites. A mixture of powdered roots from *Chlorophytum tuberosum* and *Bombax ceiba*, along with fruits from *Pedaliium murex*, is ingested with water for its purported ability to reduce body heat and serve as a tonic.

13. *Cleome gynandra* L.

Family: Cleomaceae

Vernacular name:

Part used:

Usage: The plant material is macerated and the resulting paste is expressed to obtain an extract that is topically administered for the treatment of dermatological conditions. Oral administration of fresh leaf extract has been reported to exhibit therapeutic effects in the treatment of diarrhoea, dyspepsia, flatulence, colic, and intestinal worms. A solution obtained from boiling fresh leaves that have been crushed is combined with sesame oil and instilled into the ear canal to alleviate any ear-related ailment.

14. *Cocculus hirsutus* (L.) W.Theob.

Family: Menispermaceae

Vernacular name:

Part used: Leaves

Usage: A solution of leaf extract is combined with water to create a viscous gel that is topically administered to alleviate symptoms of conjunctivitis. During the summer season, individuals consume a mixture of fresh leaf extract, water, and candy as a tonic to alleviate body heat. A topical application of leaf paste is utilised for the alleviation of pain in localised swellings. The process involves macerating the leaves in chilled water and allowing the mixture to settle undisturbed for a period of time. Subsequently, it undergoes a transformation akin to the coagulation process of curd formation. A green, curd-like substance is topically applied to the scalp for the purpose of inducing a cooling sensation in the brain and promoting hair softness. The leaves are utilised as a vegetable for the management of nyctalopia.

15. *Dichrostachys cinerea* (L.) Wight & Arn.

Family: Fabaceae

Vernacular name:

Part used: Leaves

Usage: The application of a paste made from leaves is a local remedy for snake bites, monitor lizard bites, and insect bites. Additionally, the extraction of leaf compounds is administered through the aural route to alleviate pain.

16. *Drimia indica* (Roxb.) Jessop

Family: Asparagaceae

Vernacular name:

Part used: Bulb, Leaves

Usage: The bulb was utilized as a vegetable for its potential to alleviate joint pain. A mixture of bulb paste and jaggery is heated and subsequently administered topically to alleviate discomfort in the spinal region. The local application of bulb paste is utilized for the alleviation of pain resulting from scorpion stings and bodily discomfort. Locally applied roasted bulb for the treatment of tumours, boils, and lymphadenitis. A mixture of crushed leaves and jaggery has been reported to possess antimalarial properties.

17. *Gymnosporia emarginata* (Willd.) Thwaites

Family: Celastraceae

Vernacular name:

Part used:

Usage: The newly harvested root bark is pulverised into a fine consistency and blended with water. A daily dose of one teaspoon of the decoction is administered for a period of five days to eliminate helminths from the human body. The recommended treatment for jaundice involves orally consuming 10-15 leaves along with a sugar cube twice daily for a duration of 7 days.

18. *Lannea coromandelica* (Houtt.) Merr.

Family: Anacardiaceae

Vernacular name:

Part used: Gum, Bark

Usage: A solution of gum and water is topically administered to alleviate sprains by rubbing it onto the affected area. The inner stem bark, when crushed, can be utilized to control bleeding and prevent tetanus by either applying pressure to the affected area or by being ground into a paste and applied topically. A solution containing bark extract is administered into the ear canal as a remedy for ear pain.

19. *Pedaliium murex* L.

Family: Pedaliaceae

Vernacular name:

Part used: Leaves, Fruits

Usage: A dose of 2-3 teaspoonful of fruit decoction is administered twice daily to children experiencing nocturnal emissions. A traditional remedy for leucorrhoea involves soaking leaves in water for 12 hours, followed by crushing them with sugar candy and cardamom. This mixture is then administered to affected women. The aqueous extract of the plant twig is ingested as a refrigerant and for the treatment of dysentery after being immersed in water for 7-10 times. The plant extract can be administered orally or its powder can be roasted in ghee and consumed as ladoos to provide a cooling effect during summers and enhance digestive processes. A plant that has been crushed and soaked in water is filtered the following morning. The resulting mixture is combined with sugar candy and powdered black pepper seeds. This mixture is then consumed as a refrigerant and for the treatment of skin diseases.

20. *Ricinus communis* L.

Family: Euphorbiaceae

Vernacular name:

Part used:

Usage: The application of ghee (clarified butter) or oil-smear leaves, which are warmed and tied to the affected area, is a local remedy for various ailments such as headache, muscular pain, colic, breast nodules, stiff muscles, boils, and pimples. The application of a cotton plug soaked in a solution of boiled leaf juice and ghee has been observed to provide a complete cure for cuts, wounds, boils, and pimples. A decoction derived from roots is employed as a remedy for rheumatism and lumbago. A paste made from the roots is applied topically to the penis as a treatment for urinary retention. A poultice made by crushing seeds with *ajwain* seeds, jaggery, and soap is heated and topically applied using a cotton plug to treat boils. Locally applied seed paste is utilized as a remedy for bone fractures. The combination of seed oil and milk has been found to exhibit purgative and oxytocic properties. A topical application of a mixture of seed oil and ash derived from the stem bark of neem is utilized for the treatment of boils. A decoction of bark, combined with *Nyctanthes* bark, is administered orally for a duration of seven days and applied externally as a fomentation to alleviate symptoms of rheumatic pain.

21. *Salvadora oleoides* Decne.

Family: Salvadoraceae

Vernacular name:

Part used: Seeds, Fruits, Leaves, Bark

Usage: The application of seed oil has been observed to alleviate symptoms of rheumatic pain. The administration of a decoction derived from unripe fruits has been observed to alleviate symptoms of enlarged spleen and rheumatic fever. The pliable stem or underground organ is utilized as a dental hygiene instrument in cases of tooth decay. The leaves exhibit efficacy in treating dry cough, while the fruits demonstrate effectiveness in managing asthma and digestive ailments. The combination of stem bark powder and curd has been found to be effective in treating spermatorrhoea. The stem bark was subjected to an overnight soaking process in a solution containing whey and the bark of *Capparis decidua*. The soaking process was carried out in a brass pot, which contained a copper coin. The following morning, a paste made from crushed bark is topically administered to the affected area of the skin with eczema. Following a period of 2-3 days, a decoction derived from Neem leaves is administered via a cotton plug to achieve a complete resolution of eczema. The administration of leaf juice twice daily is recommended for the complete treatment of patients suffering from jaundice. A paste consisting of *Cannabis sativa* leaves and peacock droppings is applied topically to the anus to alleviate symptoms of haemorrhoids. The paste is spread thinly and roasted on one side before application. Massage therapy using seed oil has been found to alleviate symptoms of rheumatism. The pulverised root bark is topically administered to lesions on the feet.

22. *Senegalia chundra* (Roxb. ex Rottler) Maslin

Family: Fabaceae

Vernacular name:

Part used: Gum, Bark, Kattha

Usage: The gum is consumed in its natural state for its potential benefits in alleviating symptoms of arthritis, regulating body temperature, and as a tonic. It is also utilized in the preparation of sweet confections (ladoos) that are consumed for joint pain, lumbago, and general malaise in females. A mixture of gum powder, ghee, and unrefined sugar is stored in an earthenware container for a period of 7-8 days. This is taken during the pre-ovulatory phase, three days prior to the onset of menstruation, to increase the likelihood of conception. The act of chewing bark is believed to provide relief for symptoms of cough and stomatitis. Kattha, which is extracted from the heartwood of the *Acacia catechu* tree, is applied topically to treat scabies and other skin ailments.

23. *Tribulus terrestris* L.

Family: Zygophyllaceae

Vernacular name:

Part used: Leaves, Fruits

Usage: The freshly plucked leaves are pulverised into a homogeneous mixture, mixed with water, and heated at a moderate temperature for a duration of 5 minutes. The subject consumes one teacup of liquid on a daily basis for a period of seven consecutive days. It is utilized for the therapeutic management of dysentery. Prepare a decoction of fruits and consume orally for a duration of seven days to facilitate disintegration of kidney stones.

24. *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb.

Family: Fabaceae

Vernacular name:

Part used: Bark, Pod, Seeds

Usage: Women experiencing leucorrhoea consume a mixture of pod paste and candy on an empty stomach in the morning. Women consume a mixture of ground seeds and sugar candy as a traditional method for promoting conception. Infants are administered seed powder anally as a preventative measure against worm infestation. The stem bark is utilised for medicinal purposes by either masticating it with sodium chloride or boiling it in aqueous solution, and subsequently ingesting it or using it as a gargle to alleviate symptoms of cough and oral ulcers. The bark is pulverised along with *Azadirachta indica*, combined with citric acid, and topically administered as a salve for the treatment of ringworm.

25. *Xanthium strumarium* L.

Family: Asteraceae

Vernacular name:

Part used:

Usage: A mixture of powdered leaves and mustard oil is topically administered as a treatment for canine bites. The ingestion of leaf powder with water is utilized as a cooling agent. The topical application of leaf juice or paste is utilized as a treatment for scabies. The oil extracted from seeds has been reported to possess therapeutic properties against skin ailments such as scabies. A decoction derived from plants has been found to have therapeutic effects on both spermatorrhoea and fever.



Figure 1: *Abelmoschus moschatus* Medik



Figure 2: *Achyranthes aspera* L.



Figure 3: *Albizia lebbeck* (L.) Benth.



Figure 4: *Asparagus racemosus* Willd.



Figure 5: Fruit of *Balanites aegyptiaca* (L.) Delile



Figure 6: *Boerhavia diffusa* L.



Figure 7: Flowers of *Butea monosperma* (Lam.) Kuntze



Figure 8: Capparis sepiaria L.



Figure 9: Cocculus hirsutus (L.) W.Theob.



Figure 10: Flowers of Dichrostachys cinerea (L.) Wight & Arn.

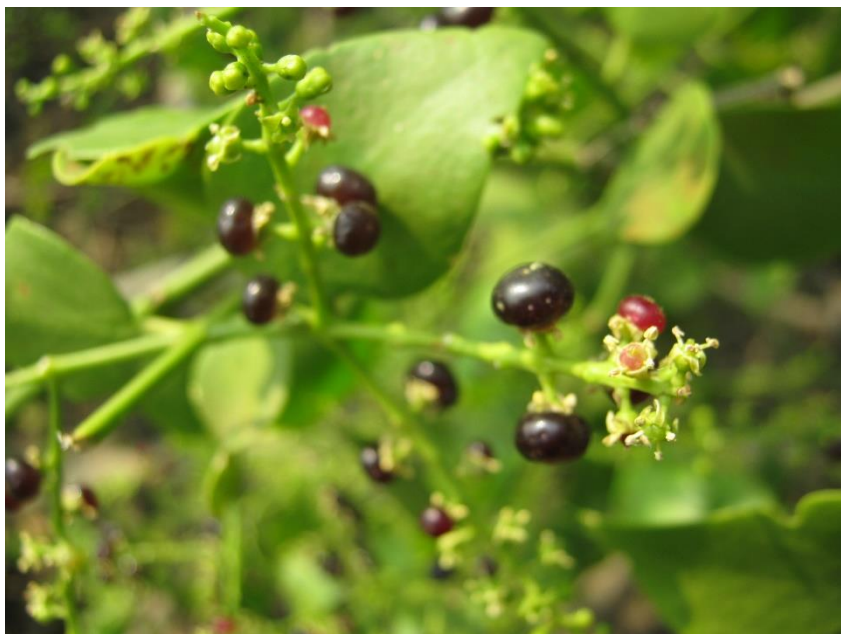


Figure 11: Fruits of Salvadora oleoides Decne.



Figure 12: Fruits of Xanthium strumarium L.

CONCLUSION

The findings of an ethnobotanical investigation conducted in Rajasthan delineate the prominent characteristics of their botanical resource exploitation and conservation tactics. The indigenous communities possess a diverse ethnobotanical legacy, which is unfortunately diminishing as a result of swift acculturation, modernization, and technological advancements. There was a lack of comprehensive and methodical investigation into ethnomedicinal practices. Thus, it was deemed crucial to conduct such an investigation.

Twenty-five plant species were utilized by tribal and traditional communities for ethnomedicinal purposes in the treatment of various ailments, predominantly abdominal disorders, body pain, cough and cold, cut and wounds,

diarrhoea, fever, scorpion sting, and toothache. The diverse methods of drug delivery include pulverisation, combustion, calcination, maceration, and admixture with other substances. The administration may involve the use of raw plant materials, extracts obtained by crushing or slicing fresh plants, juices, pastes, poultices, decoctions, gargles, plant ash, toothbrushes, oils, cooking as vegetables or ladoos, inhalation of fumes, topical application, and oral ingestion in the form of tablets or pills. Various plant components such as stem, stem bark, leaf, flower, fruit, seeds, latex, gum, root, root bark, bulb, or whole plant are utilized for medicinal purposes to treat diverse medical conditions.

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DOI: <https://doi.org/10.15379/ijmst.v10i4.3656>

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