

## Ethnomedicinal and ethnoveterinary research in dang region of Rajasthan (India)

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### Abstract

Ethnomedicinal and ethnoveterinary research in dang area of Rajasthan represents a study aimed at unraveling the rich traditional knowledge of plant usage among the indigenous community of dang region. The present work was undertaken to study of the ethnomedicinal and ethnoveterinary plants have phytochemical compounds present in the root, fruit and bark in dang area of Rajasthan. Ethnomedicinal plants have bioactive compounds such as alkaloids, flavonoids, steroids, phenols and tannins which are used to curative various human ailments and also play an important role in healing. This research endeavors to document and analyze the indigenous knowledge systems, practices and beliefs associated with plants in dang region of Rajasthan.

**Keywords:** Ethnomedicinal, ethnoveterinary, traditional knowledge, phytochemicals, bioactive, compounds

### Introduction

The study of correlation between plants and people in surrounding them is called Ethno-botany. The ethnomedicinal plants are useful for therapeutic as well as for curing of human diseases because of the existence of phytochemical compounds. Phytochemicals are naturally stirring in the medicinal plants, leaves, vegetables and roots that have protection mechanism and protect from various diseases. Mainly phytochemicals are two types - primary and secondary compounds. Chlorophyll, proteins, carbohydrates and common sugars are incorporated in primary constituents and secondary compounds have flavonoids, alkaloids and phenolic compounds. These compounds show confirmation of various vital pharmacological activities i.e. anti-inflammatory, anticancer, anti-malarial, inhibition of cholesterol synthesis, anti-viral and anti-bacterial activities. Alkaloids used as

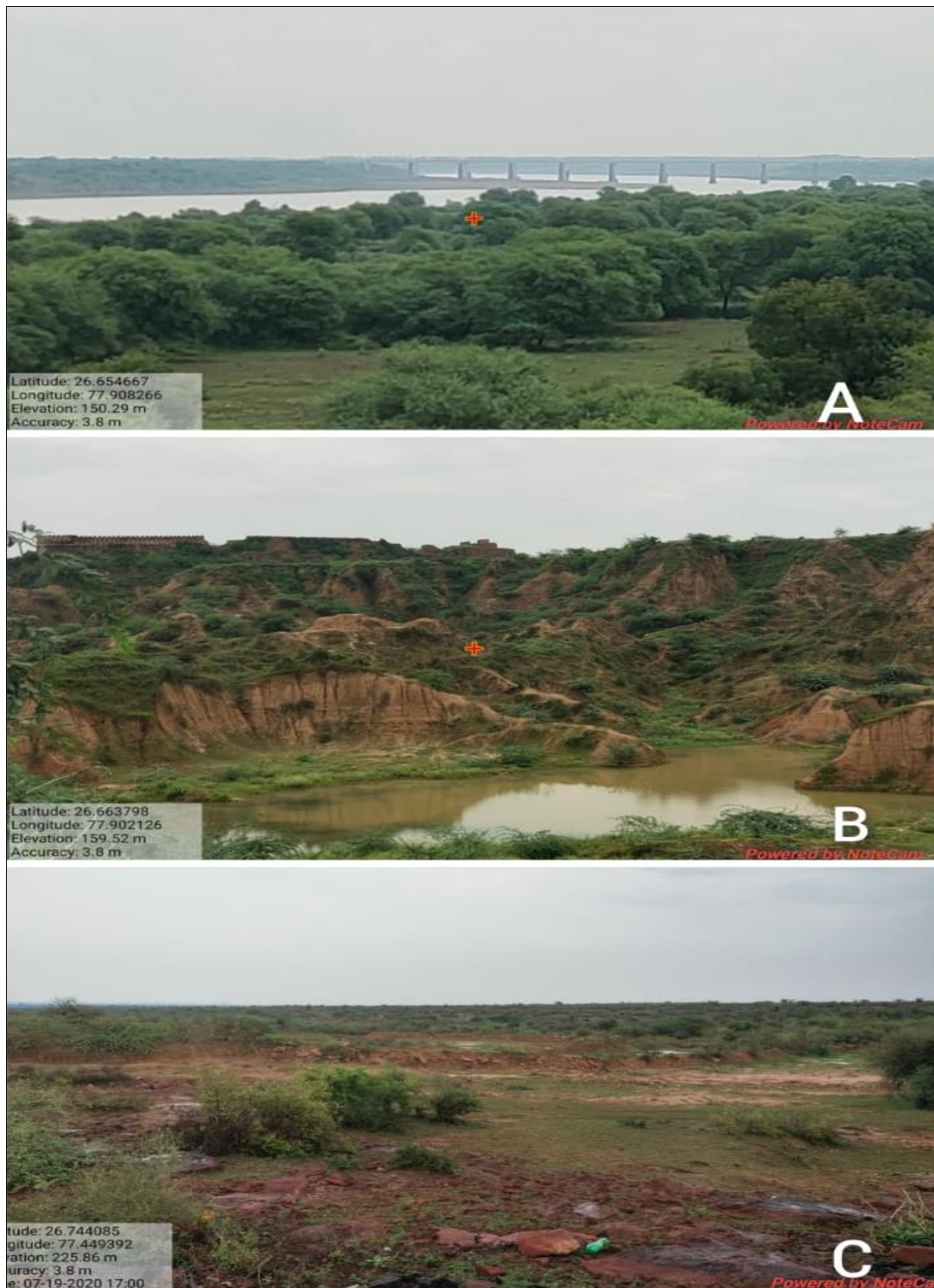
anesthetic agents are found in medicinal plants. Plant chemicals are regarded as secondary metabolites because the plants that manufacture them may have little need for them. They are synthesized in all parts of the plant body like bark, leaves, stem, root, flower, fruits, seeds etc. Currently, the global demand of herbal medicines is increasing rapidly because of their higher safety margin and low cost.

### Study area

Dang area is one of the most resource dispossessed and arid region of Rajasthan state marked with degraded ravines, barren land and severe water shortage. Dholpur and karauli districts with an area of 6034 square kilometers is located in eastern most extremity of the state of Rajasthan and lies between latitudes 22o21'19" and 26o57'33" North and longitude 77o13'06" and 78o16'45" East.



Fig 1: Map of Rajasthan state showing study area (source: Atlas of Rajasthan)



**Fig 2:** Habitat of rich biodiversity in the Dang region of Rajasthan  
(A)Vegetation near Chambal River (B) Chambal ravines near Dholpur (C) Hilly or Dang region of karauli

### Literature review and background

The word "Ethnobotany" in 1895 by Harshberger, the subject Ethnobotany came into light. 'An Introduction to Ethnobotany' by scientist Faulks (1958), was considered the first boom on the subject though it covers economic botany too. In 1960 onwards there were several publications on herbal medicines. The famous ethnography of R.E. Shultes (1960) "Trapping our Heritage of Ethnobotanical lore" creates a great sense of urgency for the studies and researches into folklore medicine. Jain (1964, 1967, 1987) wrote about the scope and importance of ethnobotany for the improvement of food plants, development of new drugs

widening the use of little known plants and conservation of plant diversity. The first book on ethnobotany in our country was published in 1981 under the title "Glimpses of Indian Ethnobotany" edited by Jain (1981).

### Materials and methods - Gathering of plant materials

Plant materials Seeds and Fruits were collected from Dang area of Rajasthan, India.

(a) The plant life was identified by villagers of tribal local communities about various aspects.

(b) Interviewing with regular people to know about ethno medicine and plants used for treating diseases in cattle.



**Fig 3:** Interactions with different tribal communities of Dang area of Rajasthan.

### Finding and analysis

In Dang region of Rajasthan in the proposed research work many plants were reported to cure various health ailments of indigenous people. Some plants like *Asparagus racemosus*, *Citrullus colocynthis*, *Pedaliium murex*, *Solanum xanthocarpum* and *Balanites aegyptiaca* are found as ethnomedicinal plants helpful in curing many health ailments. *Asparagus racemosus* root is eaten to treat stomachache and boiled crushed roots and leaves are applied locally on boils. Root powder is taken along with milk as lactagogue and to improve SP (sexual potentiality). Flowers cooked as vegetable are eaten as a tonic (Sharma and Khandewal, 2018). Gruel prepared with rice using root pieces is given to patient for jaundice and gall bladder stone. Mostly, *Pedaliium murex* was applied in different manners, also as individual plant parts or whole plant. *P. murex* is most useful as it improves the appetite, tonic, and aphrodisiac and useful in curing cough, asthma, pain, cures skin diseases and heart troubles, piles and leprosy, strangury, urinary discharges, vesicular calculi. It also helps in removal of stone in the bladder and purifies blood (Patel et al., 2011). *Citrullus colocynthis* having common medicinal uses as it is helpful in treatment of jaundice, in joint pain, cancer, toothache, wound, mastitis, leprosy, common cold, cough, asthma, diabetes, bronchitis, and in GI (gastrointestinal) diseases such as dysentery, gastroenteritis, colic pain, various MI (microbial infections), indigestion and constipation (Jamie and Abdullah, 2017). Traditionally whole plant of *Solanum xanthocarpum* is used for treatment of various disorders. Paste of leaves is applied to relieve pain, decoction of the plant is used in gonorrhoea;

roots are expectorant and diuretic, seeds act as expectorant in asthma and cough helpful in the curing of coughs, catarrhal fever, chest pain and asthma (Ghani, 1998). *Balanites aegyptiaca* seed is used as antibacterial, antifungal and expectorant. Fruit is used in leucoderma, also in whooping cough and various SD (skin diseases). In febrifuge *Balanites aegyptiaca* seed is useful (Creach, 1994). Bark is used as spasmolytic (Khare, 2007).

### Conclusion

In the vast expanse of Dang region of Rajasthan, ethnomedicinal and ethnoveterinary research has illuminated the profound relationship between the indigenous communities and their botanical environment. This research has shown that Dang area of Dholpur District, Rajasthan is rich and diversified in medicinal plant species. The tribal community's like Meena, Garasia, and Gurjar have indigenous knowledge and are using these medicinal plants in curing of various health ailments. Among ethnobotanist the gathering of information about the plant by people such as natural flora, management, classification and their use is essential for the knowledge. Documenting the information of plants and the application of their research for biodiversity protection and people welfare local people and researcher have to face lot of trouble. In conclusion the results of the present study show that all selected five plants contain the highest amount of antioxidant activity which corresponds to higher phyto-constituents like flavonoids, alkaloid in plants. Therefore the plants can be further harnessed for novel activity to inhibit cellular damage/bio-active compounds which is very well demonstrated by the current effort.

Plants also have bioactive components which have medicinal properties (Shakya, 2016). The phytochemical study of *Balanites aegyptiaca* revealed valuable information about the chemicals present in the fruit parts of the plant. The various chemical tests showed the presence of Flavonoids, alkaloids, steroids, tannins, phenols and carbohydrates. Foremost our research highlights the urgent need for the preservation of dang region of Rajasthan ethnobotanical knowledge.

Ethnomedicinal and ethnoveterinary plants play an important role in preventing various ailments in human and cattle. Ethnomedicinal plants are used for screening of the phytochemical constituents which are very much helpful in the manufacture of new herbal drugs. The outcome of this research work will reflect the system of updating the information that provides inducement for appropriate estimation of the plants as therapeutic agent in contrast to many human ailments. It may offer enormous chance for investigators involved in authentication of the traditional dues and growth of benign and operative medicine. It is very essential for pharmaceutical chemist, phyto-chemists, pharmaceuticals and Entrepreneurs who are engaged in medical Industries. Due to the increased awareness for health and recent developments in the field of medicines new researches are welcome by people worldwide. So we can expect that the outcome of this research will be a guiding light/path in the development of new medicines for various ailments, patenting new drugs and their marketing.

**Conflicts of interest-** There is no conflict of interest.

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