

## **SHEKHAWATI REGION OF RAJASTHAN A PLACE OF ETHNOMEDICINAL PLANTS AND ITS PHYTOCHEMICAL STUDIES**

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### **INTRODUCTION**

Shekhawati is a semi-arid historical region located in the northeast part of Rajasthan, India got its name from Shekhawat Rajputs. The inhabitants of Shekhawati are considered brave, sacrificing and hard working people. The region provides the highest number of persons to the Indian Army. The region of Shekhawati is also known as Scotland of India because of its brave, sacrificing and painstaking Jat-Rajput people who are ancient rulers and military men.

The Shekhawati region has produced large number of Marwaris who are dominant factor in the economy of India. About 80 percent of big industrial houses are managed by Marwaris. India's richest industrialists of the century, such as the Birlas and Dalmia, are Marwaris. Today, the main trading and industrial houses of India have their roots in Shekhawati.

Between 1830 and 1930, they erected buildings in their homeland, Shekhawati, as evidence of their success. As the ultimate symbol of their opulence, the Marwaris commissioned artists to paint those buildings.

Most of the buildings of the Shekhawati region were constructed from 18th century to the early 20th century. During the British occupation, traders adapted this style for their buildings. The havelis are noted for their frescos depicting mythological and historical themes. The frescos include images of gods, goddesses, animals, life history of Lords Rama and Krishna, profusely painted on the havelis in this region.

## GENERAL IMPORTANCE OF THE RESEARCH TOPIC

Presenting recent discoveries on ethnomedicinal plants around the world, mainly focuses on evaluating the progress to date as well as the future potential of drug development in ethnomedicine. Eight reviews examine therapeutic applications including the spasmolytic effects of various plants, the anti-inflammatory activity of plants from Brazil and Tunisia, common fertility treatments in Trinidad and Tobago, traditional medicines from Cameroon and their interaction with estrogen receptors, the medicinal plants used in Spain to treat digestion problems, immune-modulators and stimulators from plants, and antimicrobial herbs from India. Ethnomedicine is a study or comparison of the traditional medicine practiced by various ethnic groups, and especially by indigenous peoples. The word ethnomedicine is sometimes used as a synonym for traditional medicine.

Ethnomedical research is interdisciplinary; in its study of traditional medicines, it applies the methods of ethnobotany and medical anthropology. Often, the medicine traditions it studies are preserved only by oral tradition.[1]

Scientific Ethnomedical studies constitute either anthropological research or drug discovery research. Anthropological studies examine the cultural perception and context of a traditional medicine. The purpose of drug discovery research is to identify and develop a marketable pharmaceutical product.

## LIST OF IMPORTANT MEDICINAL PLANTS AND THEIR USES

| Plant            | Maturity period | Botanical Name or Family             | Medicinal Use                                |
|------------------|-----------------|--------------------------------------|--|
| Ashok ( T )      | 10 years onward | Saraca Asoca<br>Fam : Caesalpinaceae | Menstrual Pain, uterine, disorder, Deiatetes |
| Bael / Bilva (T) | After 4-5 year  | Aegle marmelous<br>Fam: Rutaccac     | Diarrhoea, Dysentery, Constipation.          |

|                          |   |  |   |
|--------------------------|---|--|---|
| Guggul ( T)after 8 years | After 8 years<br>Commiphora Wightii<br>Fam: burseraccac | Commiphora Wightii<br>Fam: burseraccac   | Rheuma tised, arthritis,<br>paralysis, laxative           |
| Senna ( S )              | With in 1 year Casia<br>augustifolia<br>Fam: Liliaceae  | Casia augustifolia<br>Fam: Liliaceae     | Rheumatism, general<br>debility tonic,<br>aphrodisiac.    |
| Satavari ( C )           | After 2-3 year  | Asparagus Racemosus<br>Family: liliaccac | Enhance lactation,<br>general weekness,<br>fatigue, cough |

Some of the plants are rich in secondary metabolites which are potential source of drug and essential oils. Biosynthesis of metabolites although controlled genetically is affected strongly by environmental influence. As a result there are fluctuations in the concentrations and quantities of secondary metabolites such as antimicrobials like flavonoids.

Researches on flavonoids have been conducted both in vivo and in vitro Flavonoids have been reported by many workers such as Harsh, (1982); Pathak and Manral, (1987); Mathur, (1988); Salama *et al.*, (1991); Jia *et al.*, (1993); Mou *et al.*, (1994); Karuza *et al.*, (1996); Ferreres *et al.*, (1997); Chen and Mentaneri, (1998) Lee-min-won *et al.*,(1999); Smolarz-Helena *et al.*, (2000); Gins *et al.*, (2000); El-Toumy *et al.*, (2001), Shahid (2002) and Kapoor & Ranga (2003), Kapoor *et al.*(2004), Khatri (2005), Gir (2006), Khatri (2007 ), Singh (2008), Bansal (2009), Arora (2010), Lakhera (2011), Kapoor *et al.*(2011), and Veena (2012).

A number of plants have been screened for their antimicrobial activity. Antimicrobial activity of various plant parts have been reported by Chandel *et al.*, (1993); Khan *et al.*, (1996); Akhtar *et al.*, (1997); Tereschuk *et al.*, (1997); Mendoza *et al.*, (1997); Mandeel *et al.*, (1999); Ahmad Ei Sawi *et al.*, (1999); Khan *et al* (2001); Ahmad and Beg-Arina,(2001), Shahid (2002) and Ranga (2003), Kapoor *et al.*(2004 ), Khatri (2005), Gir (2006), Khatri (2007 ), Singh (2008), Bansal (2009), Arora (2010), Lakhera (2011), Kapoor *et al.*(2011), and Veena (2012).

## OBJECTIVES OF THE PRESENT WORK

1. To identify and collect the selected ethnomedicinal plants from different study area.
2. To study the morpho-taxonomical and ethno-medicinal aspects of plants of study area.

3. Phytochemical analysis of primary metabolites i.e. nutritive contents, amino acid contents, mineral contents and ascorbic acid contents to know food and fodder value.
4. To carry out the qualitative and quantitative analysis of secondary metabolites to know the medicinal value.
5. To study the antimicrobial activities of selected plant species on some bacterial and fungal pathogens to know the medicinal value.

## **CHAPTER- WISE DETAILS OF PROPOSED RESEARCH WORK**

### **CHAPTER I - INTRODUCTION**

This chapter will include the general account of Barmer district of the Rajasthan, ecological, phytochemical and ethno-medicinal aspects of selected plants of this region.

### **CHAPTER II - REVIEW OF LITERATURE**

This chapter will include research work done on the topic by various workers of this field.

### **CHAPTER III – MORPHO- TAXONOMIC ASPECTS OF SELECTED ETHNO-MEDICINAL PLANT SPECIES**

This chapter will include morpho-taxonomic characteristics of the each selected ethnomedicinal plant habit, habitat and its economic importance. Ethno-medicinal information regarding their utility will be gathered from local people, vendors, tribal communities and experts of Ayurvedic field.

### **CHAPTER IV – EVALUATION OF NUTRITIVE CONTENTS**

In the chapter crude protein, fats, fibre, nitrogen free extract, total ash, total carbohydrates, organic matter, will be analyzed by A.O.A.C. methods (1995).

### **CHAPTER V – EVALUATION OF MINERAL CONTENTS**

In the chapter mineral contents will be analyzed by Talpatra *et.al* method (1940), Purohit and Mathur (1970) methods.

#### CHAPTER VI – EVALUATION OF AMINO ACID CONTENTS

In the chapter amino acid contents will be analyzed by Awapara (1948), Black *et al.* (1958) and TLC method by Aminuddin, (1927).

#### CHAPTER VII - ESTIMATION OF ASCORBIC ACID CONTENTS

Estimation of endogenous ascorbic acid will be carried by Chinoy (1962) method of some selected ethnomedicinal plant species.

#### CHEPTER VIII- SCREENING OF ANTIMICROBIAL ACTIVITIES

Antimicrobial screening will be done by the procedure of Khanna and Staba (1968) Algaski *et al.* (1975) and effect on some pathogenic microorganisms like Bacteria and Fungi will be observed.

#### CHAPTER IX– IDENTIFICATION & ISOLATION OF ANTIMICROBIAL PRINCIPLES

Estimation of antimicrobial principles (flavonoids) will be done by Colorimetric Harborne, J.B. (1973) Mabry *et al* (1970) .

#### CHAPTER X– RESULTS AND DISCUSSION

All the findings and results will be discussed in this chapter.

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