

Traditional Phytomedicines and Their Antibacterial Activities from Mahur Forest

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ABSTRACT

Ethnomedicinal survey with traditional herbal practitioners from tribal communities has been conducted in mahur forest during 2018-19. It is found that, some of the forest plant species are used as ethnomedicines by the practitioners to overcome the health issues locally. This paper mainly focused on the ethnomedicinal (Traditional) uses and antibacterial activities of some forest plants. Traditional phytomedicines of *Wrightia tinctoria*, *Sapindus emarginatus* and *Cyathocline purpurea* are recorded. Among these *Wrightia tinctoria* proved the highest antibacterial activity against tested bacteria.

Keywords: Traditional Phytomedicines, Antibacterial activity, Mahur forest.

I. INTRODUCTION

India has a rich heritage of herbal medicine. The modern Indian authors worked on Indian medicinal plants. The valuable work has been done by many of workers including Nadkarni (1995). In course of time the knowledge of traditional phytomedicine is on decline. The rapid progress in modern research coming forth are seen a setback for the production and use of local traditional phytomedicines which is a part of one of the discipline 'Ethnobotany'. Ethnobotany is a totally natural and traditional relationship and interaction between man and his surrounding (Harsberger 1895).

In Marathwada region of Maharashtra, Mahur tahesil is a hilly remote, tribal area and is surrounded by dense forest in Nanded district. Five tribal communities are native of this region. The traditional practitioners belongs to these communities, they have much of knowledge about phytomedicines of the area and maintain the health of the society. The floristic survey of different ranges of Mahur forest has been done by various workers (Zate,1983; Naik,1998; Chavan,2002), with some ethnomedicinal notes. The use of phytomedicines by the local traditional practitioners indicates the significant medicinal value of the local flora against health ailments. Many of the workers reported the antibacterial activities of plant extracts against pathogenic bacteria (Gibbon, 2005 ; Bharat, 2015). To considering all these facts the present topic has been undertaken.

II. MATERIAL AND METHODS

a) **Ethnobotany:** Ethnobotanical survey of mahur range forest was conducted in 2018-19 during the study. For the collection of ethnomedicinal information's and plant parts used as a medicine the traditional practitioners were interviewed by visiting their houses and also on fields. Interviews, enquiries and cross questioning was conducted with the practitioners. A special questionnaire was made in the proforma and it has been adopted for interviews. This type approach and communication skill yields valuable information about ethnomedicinal plants.

b) **Preparation of Extract:** The plant material in the form of leaves collected from the forest during exploration trips and brought to the laboratory. They were washed thoroughly with tap water to remove contaminants and dried under shade about 8-10 days separately. The dried leaves can be grind into powder and store in airtight container at room temperature till the extraction. The extracts were prepared by extraction 10mg of leaf powder with 100ml of ethyl alcohol by soxhlet extractor for about 90-120min. separately. These extracts were used for antibacterial activity.

c) **Antibacterial activity:** Antibacterial activities of plant extracts against human pathogenic bacteria were carried out during the study. The antibacterial activities of the extract evaluated by well plate agar diffusion method (Collins, 1967; Godkar, 1996) against tested bacteria. The bacteria grown on nutrient agar medium at pH7.6. The cups were made with the help of sterilized 8mm cork borer. The 100mg/ml of extracts were poured in each cup of plates. The plates were inoculated at 30°C for 24hours. The bacterial activity was measured in diameter of inhibition zone in mm. of the samples and compare in with control and a standard antibiotic streptomycin.

III. RESULT AND DISCUSSIONS

1. Morphological description of Ethnomedicinal plants:

a. **Wrightia tinctoria** R. Br. in Mem. Wern. Nat. Soc. 1: 74. 1811.

Trees, Leaves acuminate at apex, rounded at base, pubescent along midrib below, occasionally glabrous. Flowers white. Follicles paired, drooping, apices connate. Seeds pointed.

Fls. & Frts. : March-May.

Distrib. : Common in dry deciduous forests; Datta shikhar, Mahur.

b. **Sapindus emarginatus** Vahl, symb. Bot. 3: 54. 1794.

Trees, bark rough with grey scales. Leaves paripinnate; leaflets 3-5 (7) pairs, oblanceolate or ovate-oblong, glabrous above. Flowers dull white. Drupes ovoid, lobed, fleshy, fulvous hairy when young.

Fls. & Frts. : February-May.

Distrib.: Common in villages; Iwaleshwar.

c. **Cyathocline purpurea** (Buch.-Ham. Ex D. Don) O. Ktze. Rev. Gen. Pl. 333. 1891.

Suberect herbs, viscid and glandular, silky hairy, basal leaves radial and cauline, sessile, segments toothed. Heads 0.3-0.6cm across, in terminal corymbose-panicles; acute, hairy on margins. Achenes oblong.

Fls. & Frts. : September- March.

Distrib.: Common throughout in wet places: Pandav caves, Mahur.

2. Ethnomedicinal importance of Plants:

a. *Wrightia tinctoria*

1. Tooth ache: leaves chewing 5 to 10 minutes twice for cure tooth ache.
2. Lactation: One inch stem bark powder taken orally with one cup of water daily once for three days.
3. Cold and Cough: One leaf taken orally daily twice for three days.
4. Kidney stone: 10gm stem bark powder taken orally with curd daily once for 7 days.
5. Stomach ache: One small glass decoction of stem bark taken orally once only.
6. Eye Infection: Latex mixed in 'Ghee', apply on infection daily once till cure in animals.
7. Curd preparation: Fruit latex mixed in milk to prepare curd.

b. *Sapindus emarginatus*

Fish Poison: Fruit pulp crush and prepare juice and pore in water as a fish poison.

c. *Cyathocline purpurea*

Head ache: leaf paste apply externally till cure.

3. Antibacterial Activity of the Plants:

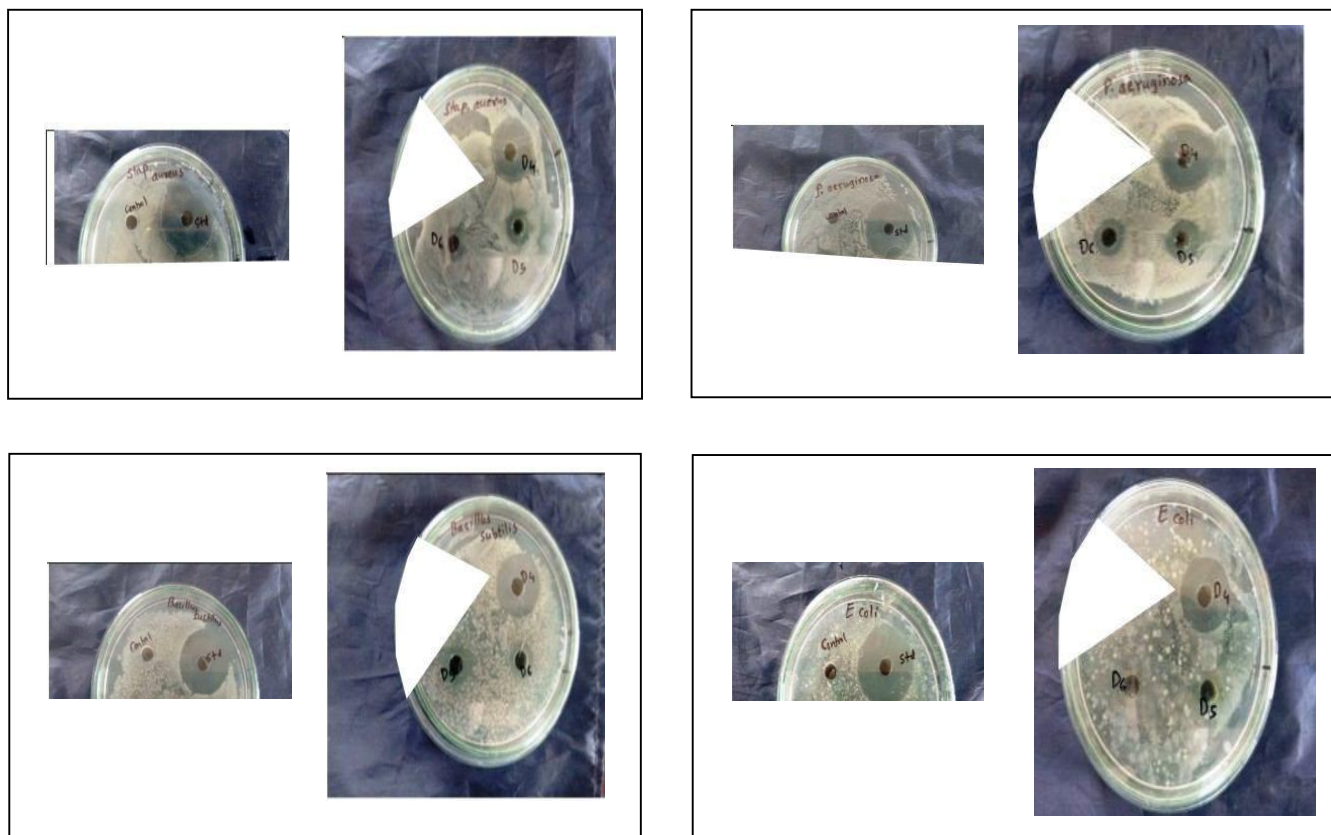
The antibacterial screening of ethnolic extracts of leaves of the plants has been done against pathogenic bacteria and the results are mentioned in table no 1. During screening the antibacterial activity of each extract measured in terms of inhibition zone. The ethnolic leaf extracts showed inhibitory action against all tested bacteria with some exceptions.

As noted in the table the ethnolic extract of *Wrightia tinctoria* showed highest i. e. near about 70% as compared to standard inhibitory action against all tested bacteria. It occurs maximum against *S. aureus* and *B. subtilis* followed by *P. aeurogenosa* and *E. coli*. It is very significant that, the activity of the *Wrightia tinctoria* against all tested bacteria is good as compared to Standard. The activity of *S. emarginatus* and *C. purpurea* extracts against all tested bacteria is poor. It shows near about 20% activity as compared to the standard (Streptomycine).

Table-I: Antibacterial activity of ethnolic extracts of leaves of ethnomedicinal plants.

S. No.	Name of the plant with sample code	Part used	Zone of Inhibition (mm).			
			<i>Staphylococcus aureus</i>	<i>Pseudomonas aeurogenosa</i>	<i>Bacillus subtilis</i>	<i>E. coli</i>
1.	<i>Wrightia tinctoria</i> (D4)	Leaf	19mm	18mm	19mm	17mm
2.	<i>Sampindus emarginates</i> (D5)	Leaf	07mm	08mm	08mm	02mm
3.	<i>Cyathocline purpurea</i> (D6)	Leaf	08mm	07mm	07mm	01mm
4.	Control	--	00mm	00mm	00mm	00mm
5.	Standard(Streptomycin)	--	25mm	28mm	26mm	27mm

***Photographs of petri plates showing zone of inhibition in bacterial growth.**



IV. CONCLUSION

During exploration it is observed that, the Mahur forest is rich in wild medicinal plants. They are used as traditional phytomedicines against health issues. This work yields important ethnomedicinal uses of noted plants i. e. traditional phytomedicines during the survey. *Wrightia tinctoria* proved the highest antibacterial activity against all tested bacteria followed by *S. emarginatus* and *C. purpurea* as mentioned in table no.1. This type of study is important for further drug extractions and pharmacological research. It is also helpful to draw the attentions of researchers for further advanced studies.

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