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PHYTOCHEMICAL SCREENING AND ANTIMICROBIAL STUDY OF *CORDIA MACLEODII*. HOOK F. AND THOMS.ON SOME HUMAN PATHOGENS

RAVI UPADHYAY, NIKHIL KANUNGO

Abstract: Plants and plant based medicines are the basis of the modern pharmaceuticals which are used today for our various ailments. The present study investigates the phytochemical and antimicrobial activity of ethanol and methanol extracts of *Cordia macleodii* Hook. leaves. Ethanol extract revealed the presence of alkaloids, carbohydrates, proteins, phenolic compounds, flavonoids, tannins, and steroids while carbohydrates, proteins, fixed oil fats, phenolic compounds, saponins and triterpenoids were present in methanolic extract. The antimicrobial activity was studied by Agar disc diffusion method. The ethanol extract was found to be more active against selected bacterial strains, the highest inhibitory activity was found against *Pseudomonas aeruginosa* with 12 mm zone of inhibition while methanolic extract showed highest activity against *Pseudomonas aeruginosa* and *Escherichia coli* with zone diameter 10 mm. Antifungal activity was more against *Aspergillus flavus* in both the extract.

Key words : *Cordia macleodii* , Anti microbials.

Introduction: Medicinal plants with antimicrobial activity are known to offer protection against various bacterial, fungal, viral and other diseases (Srivastava et al., 1996) and also find industrial applications. Antibiotic resistance is a serious health problem with significant mortality and morbidity from treatment failures and lead to increased health care costs. Testing the antibacterial and antifungal activity of plant extracts is beneficial to the food, dairy and bakery industries as such extracts are safe and offer inexpensive and effective alternative methods of preventing microbial contamination. Aqueous or solvent extracts of different plant parts have been tested for pharmacological and therapeutic activities, such as antimicrobial, antidote, hypoglycemic, hypolipidemic and other activities. (Dubey et al 2008, Testing plant extracts for antimicrobial activity could be a good source to identify new antimicrobial drugs (Anjana et al., 2009). Considering the high potential of plants as a source of antimicrobial drugs a systemic investigation was taken to test the phytochemical and antimicrobial activity of *Cordia macleodii* leaves. *Cordia macleodii* (Family: Boraginaceae) commonly known as 'Dahiman' or 'Dayyad' is a medium sized tree that is extensively used as a common wound healing plant by the tribals. It is used in the folk medicine for wound healing. The leaves are used as anti inflammatory. The leaf, seeds and roots are known to possess medicinal properties. Oils from *Cordia macleodii* seeds are applied to the sore muscles and joints in rheumatism and arthritis. Crushed leaves can be used to alleviate local pains and for the cure of external wounds and skin diseases (Mallikarjuna et al., 2013). In the present study ethanolic and methanolic extract were evaluated for antimicrobial activity against Gram positive bacteria *Staphylococcus aureus*, Gram negative bacteria

Escherichia coli and *Pseudomonas aeruginosa* and fungi *Candida albicans* and *Aspergillus flavus*.

Material And Methods:

Plant material: The healthy leaves of *Cordia macleodii* were collected locally from the forests of Hoshangabad and Chhindwara districts of M.P. The collected leaves were washed and shade dried at room temperature. The dried sample was milled in to powder using the electric blender. The powder was stored in air tight bottles and stored for further analysis.

Solvent extraction: 25 g. of shade dried powder of *Cordia macleodii* leaves was filled in the thimble and extracted successively with ethanol and methanol solvent in soxhlet extractor for 48 h. The solvent extracts were concentrated under reduce pressure and preserved at 5°C in airtight bottles.

Phytochemical screening: Phytochemical screening was performed in the plant extracts obtained by extraction with different solvents using standard procedure as described by (Trease and Evans, 1983; Harborne, 1998; Thimmaiah, 2004).

Antimicrobial activity: Test microorganism used were human pathogens *Escherichia coli*, *Pseudomonas aeruginosa* both (Gram negative), *Staphylococcus aureus* (Gram positive), and fungi *Candida albicans*, *Aspergillus flavus*. These micro organisms were procured from American Type Culture Collection (ATCC), USA.

Media used: For pure culture maintenance Nutrient Agar Media and for antibacterial activity Muller Hinton Agar (HiMedia, India) was used. For fungi Muller Hinton Agar supplemented with 2% glucose was used.

Antimicrobial activity was tested by disc diffusion method. 100 µg/ml concentrations of both the extracts were used. The test microorganisms were seeded in to respective medium by spread plate

ETHNOVETERINARY MEDICINAL PLANTS TRADITIONALLY USED BY TRIBES OF CHHINDWARA (M.P.)

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Abstract: In this article plants used to cure various livestock diseases by the tribes of Chhindwara are enumerated. A total number of 30 plants belonging to 26 families were reported to have ethnoveterinary applications. The present study emphasized that there is a profound and growing knowledge gap between old and younger generations. People of more than 50-65 years age know a lot about wild plant products as compared to younger generation. The impact of modern amenities leads to slow and diminishing of ethnobotanical knowledge.

Keywords: Chhindwara, Ethnoveterinary, Remedies, Tribes.

Introduction: Chhindwara district lies between latitude 21 to 22° North and longitude 78 and 79° East. It is located in south-west of Madhya Pradesh and is a well known tribal district and the largest district of the state. The main tribe found in the area belongs to Mavashi, Pardhan, Bhariya and Gond. They prefer to live on hilly tops or near to forest area in small settlements.

Ethno-veterinary medicine refers to people's knowledge, skills, methods, practices and beliefs about the care of their animals [1]. Ethnoveterinary Medicine is used for the maintenance of good animal health in developing countries [2]. According to an estimate over 80% of the developing world's population while half of the population in industrialized countries use the traditional medicine for treatment of human and animal diseases [3].

Ethno-veterinary medicines (EVM) are as old as the domestication of various livestock animal species. Despite the advancement of pharmaceutical industry and development of clinical agents, traditional indigenous medicine is still practiced in rural areas for human and livestock ailments. These EVMs and practices are holistic livestock health care and management methodologies adopted in various parts of the world. During recent years, there has been wide concern for collecting more ethnobotanical information, especially ethnomedicinal information on plants [4]. In India and other countries good attempts have been made to document the medicinal plants used to cure animal diseases.

Materials & Method: An ethnobotanical study was conducted from March 2011 to June 2014 in different locations of the Chhindwara district. For accurate and best possible information the elders, traditional healers, local practitioners, 'vaidhyas' and housewives were interviewed based on specific questionnaire designed by [5] and information were recorded in the ethnobotanical field notebook. The specimens were identified using regional floras and various revisionary and monographic works. Information

regarding the vernacular plant names, part(s) used, methods of preparation, mode of application and treated diseases were documented.

The present study was planned with the following objectives:

1. To document the scattered knowledge of ethnoveterinary practices used for maintaining the health and curing diseases of livestock and pet animals in rural areas of Chhindwara.
2. To assess the present status of ethnoveterinary knowledge in rural areas of Chhindwara.
3. To provide information to researchers testing the efficacy of locally available remedies and finding alternatives to conventional medicines that will help them in developing useful information for the farmers.
4. To address the need that along with modern veterinary medicine effective traditional alternatives is a suitable solution for animal health problems.

Result & Discussions: A total of 30 plant species belonging to 26 families were reported by the study participants against veterinary ailments have been gathered and documented alphabetically along with their local names, parts used, preparations & applications.

Acacia nilotica (L.) Delile

Family: Mimosaceae

Vernacular Name: Kikar

Habit: Tree, Part used: Leaves

Ethnoveterinary uses: (i) 500 g tender twigs are given as feedstuff for 2-3 days to buffaloes for curing diarrhoea.

(ii) 500 g fruits or bark are given as feedstuff daily for 4-5 days to the sheep and goats to kill the stomach worms.

(iii) Gum of the plant is used for loss of appetite in cattle.

(iv) Flower powder mixed with water is given orally to animal twice a day to cure jaundice.

Aegle marmelos (L.) Correa

Family: Rutaceae