IN VITRO ANTIMICROBIAL ACTIVITY OF INDIAN MEDICINAL PLANTS

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Abstract

As a developing country India is represented by rich culture, tradition and natural biodiversity and it offers a unique opportunity for drug discovery research. The present investivation was performed for invitro analysis of antibacterial activity of *Saraca indica, Azadirachata Indica and Ocimum sanctum against Staphylococcus aureus, Pseudomonas aeruginosa* and *Escherichia coli.* Results shows that plant extracts were effective against all bacterial strains.

Key words:- Antibacterial activity, *Saraca indica, Staphylococcus aureus, Pseudomonas aeruginosa.*

I. INTRODUCTION

India has rich culture, tradition and natural biodiversity and it provides opportunity for drug discovery research. According to Jachas, 2007 and Singh, 2002 number of traditional natural products have been increased and much work has been done on selected ethno medicinal plants for antibacterial activity against pathogenic strains of Gram negative and Gram positive bacteria. Further, natural products as an alternative to conventional treatment in healing and treatment of various diseases have been on the rise in the last few decades. Recently Kaur et al., 2017, Yadav et al., 2018, Yadav (2018), Ved and Mohsin (2018), and Ashish and Mohsin(2018) worked on antimicrobial activity of Indian medicinal plants. The present investivation was performed for invitro analysis of antibacterial activity of *Saraca indica, Azadirachata Indica and Ocimum sanctum against Staphylococcus aureus, Pseudomonas aeruginosa* and *Escherichia coli.*

II. MATERIALS AND METHODS

The plant materials were collected from local area of District Shahjahanpur of Uttar Pradesh, India.

Bacterial Strains

Staphylococcus aureus (NCIM-2079)

Escherichia coli (NCIM-2064)

Pseudomonas aeruginosa (NCIM-5210)

Solvent and Media: Methanol and Nutrient Agar

Extract Preparation: Powdered plant material was used for methaloic extract through Soxhlet apparatus. Then extract was evaporated to remove methanol and dried extract was stored at 4° C for analysis.

Agar Well Diffusion Method: Bacterial cultures were swabbed over solidified nutrient agar medium. The wells were prepared using cork borer. Test samples were dissolved in different

concentrations such as 25, 50 and 100 µg/ml. The 40µl sample was loaded in wells with DMSO as negative control and amoxicillin and positive control.

III. RESULTS AND DISCUSSION

Table 1 shows antimicrobial activity of *Saraca indica, Azadirachata Indica and Ocimum sanctum against Staphylococcus aureus, Pseudomonas aeruginosa and Escherechia coli.* Results shows that plant extracts were effective against all bacterial strains. Presence of phytochemicals in plant extracts is responsible for antimicrobial activity. These plants have many medicinal uses and also a nontoxic traditional medicinal plant. The use of phyto compounds isolated from these plants against diseases is a challenge in the development of modern drug discovery.

Table 1: Effect of methanolic plant extracts in vitro

	CONCENTRATION OF PLANT EXTRACTS IN µg/ml								
	Saraca indica			***Azadirachata Indica***			***Ocimum sanctum***		
	25	**50**	**100**	**25**	**50**	**100**	**25**	**50**	**100**
	ZONE OF INHIBITION IN mm								
***Staphylococcus aureus* (NCIM-2079)**	-	10	15	-	11	18	-	7	16
***Pseudomonas aeruginosa* (NCIM-5210)**	-	9	16	-	7	16	-	6	14
***Escherechia coli* (NCIM-2064)**	-	6	14	-	6	15	-	6	12

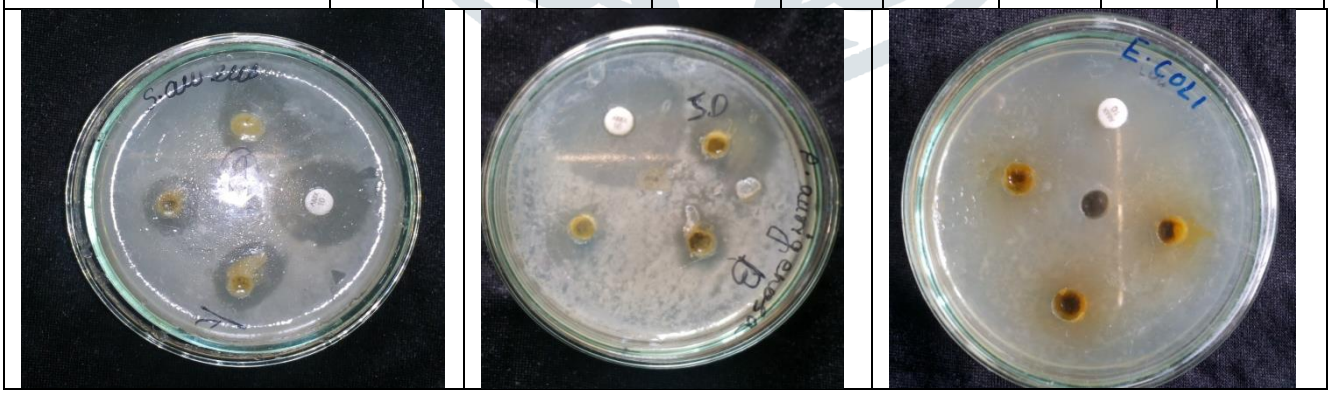

Figure 1: Inhibition Zone Photographs of Plant Extracts

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