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ORIGINAL RESEARCH ARTICLE

Antimicrobial Activity of Leaves of *Lantana camera* Linn.

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ABSTRACT

The antimicrobial activity of extract from the leaves of *Lantana camera* Linn. were investigated against both gram positive and gram negative bacterial strains. Test bacteria was *Staphylococcus aureus, Escherichia coli, Bacillus subtillus and Pseudomonas aeruginosa,* all four are pathogenic bacteria that cause diarrhea and many more uncontrolled diseases due to resistance. Hydro alcoholic extract showed significant inhibitory effects against antibiotic resistant gram negative bacteria including *E. coli* and *Pseudomonas aeruginosa.* Antimicrobial activity was assayed by the standard disc diffusion method.

Key Words: *Lantana camera* Linn, Antimicrobial Activity, Agar, Disc diffusion method.

INTRODUCTION

An antimicrobial is a substance that kills or inhibits the growth of microorganisms such as bacteria, fungi, or protozoan's, as well as destroying viruses [1]. Antimicrobial drugs either kill microbes (Microbiocidal) or prevent the growth of microbes (Microbiostatic). Disinfectants are antimicrobial substances used on non-living objects. Antimicrobial agents are among the most commonly used and misused of all drugs [2]. The inevitable consequence of the widespread use of antimicrobial agents has been the emergence of antibiotic-resistant pathogens, fueling an ever-increasing need for new drugs [3].However, the pace of antimicrobial drug development has slowed dramatically, with only a handful of new agents, few of which are novel, being introduced into clinical practice each year. Reducing inappropriate antibiotic use is thought to be the best way to control resistance [4].

The genus *Lantana* Verbenaceae as described by Linnaeus in 1753 contained seven species, six from South America and one from Ethiopia. Lantana from the Latin *lento*, to bend. Probably derives from the ancient Latin name of the genus *Viburnum* which it resembles a little in foliage and inflorescence. *Lantana* is mostly native to subtropical and tropical America, but a few taxa are indigenous to tropical Asia and Africa [5].The recorded number of *Lantana* species varies from 50 to 270 specific and sub specific entities, but it appears that a better estimate is 150 species.

MATERIAL AND METHODS

Leaves were collected from college premises. Leaves were authentified from K.N.K. College of horticulture by Dr. Gyanendra Tiwari Mandsaur and specimen was submitted in Department of Pharmacognosy at Mandsaur Institute of Pharmacy, Mandsaur. Leaves were dried in shade at room temperature. The fresh leaves

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were washed with distilled water to remove dirt and air-dried for 5 days [6].The dried leaves were then subjected to coarse powder. The leaves powder was stored sealed in five labeled reagent bottles for further use. One hundred milliliters water-ethanol (1:1) were added into 10 g portions of the leaves powder in separate sterile conical flasks and allowed to soak at ambient temperature for 72 hrs. [7]. The extracts were then filtered using muslin cloths. Then filtrate was evaporated on water bath.

Table 1 Antimicrobial data

S.No	BACTERIA	ZONE DIMETER (in mm)	
		Hydro alcoholic Extract	**Petroleum Ether Extract**
1	STANDARD	25	26
2	*Escherichia coil*	8	11
3	*Bacillus subtillus*	12	8
4	*Pseudomonas aeruginosa*	15	17
5	*Staphylococcus aureus*	11	9

ANTIMICROBIAL ACTIVITY

Agar disc diffusion method was adopted to determine the antibacterial activity of aqueous extracts against the test organisms [8].The media (Mueller Hinton Agar No. 2), along with the inoculum (108µg/ml), was poured into the Petri plate (Hi- Media). For the agar disc diffusion method, the disc (0.7 cm) (Hi- Media) was saturated with 100 ml of the test compound, allowed to dry and then placed on the upper layer of the seeded agar plate [9].The plates were incubated overnight at 37^0C. Antibacterial activity was determined by measuring the diameter of the zone of inhibition surrounding bacterial growth [10]. for each bacterial strain, controls were included that comprised pure solvents instead of the extract. The control zones were subtracted from the test zones.

RESULTS

The result thus suggested that hydro alcohalic extract of leaf showed a moderate antibacterial activity against *E. coil* and *S. aureus* and a strong activity against *P. aeruginosa* and *B. subtillus.*

CONCLUSION

The Hydro- alcoholic extract of *L. camara* remarkably inhibited the growth of following tested bacteria, Escherichia *coli, P. Aeruginosa, Bacillus subtillus, and Staphylococcus aureus.*

Overall the Hydroalcohalic extract showed a significant activity against for *Pseudomonas aeruginosa* and *E. coli* occurs where the inhibition value is lower than that of standard.

All antimicrobial activities were observed to be concentration dependent. The activity of extract was less than that of standard antibiotic i.e. ofloxacin.

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