

**Evaluation of antimicrobial activity of combined extracts of *Acalypha hispida*,
Acalypha nervosa and *Acalypha fruticosa***

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ABSTRACT

Chemotherapeutic agent is use for the treatment of the microbes but increasing resistance towards this drugs so require a new agent have antimicrobial activity. So we have studied antimicrobial activity of combined extracts of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa*. The Combined methanolic extracts of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* were found to posses' powerful antimicrobial activity against the selected test organisms.

Key words: *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa*, antimicrobial activity.

INTRODUCTION

Due to indiscriminate use of antimicrobial drugs, microorganisms have developed resistance to many antibiotics drugs. They reduced the susceptibility to antibiotics and made it difficult to give treatment against the infectious diseases. The cost of production of synthetic drugs is also high and they produce adverse effect compared to plants derived drugs. Hence much attention has been paid recently, to the biologically active compounds derived from plants use in herbal medicine. Traditional medicines hold a great promise as source of easily available effective therapy for infectious diseases to the people, particularly in tropical developing countries, including India. It is in this context that the people use several plants derived preparation to cure infectious diseases. They provide a myriad of natural product, which are used in extensive applications in combating the diseases. In many parts of India, herbal medicine is used for treating various diseases. India possesses a vast number of medicinal plants possessing antimicrobial activity. An attempt was made to study the antimicrobial activity of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa*.

MATERIAL S AND METHODS

Plant collection: The Plants *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* were obtained from different parts of Andhra Pradesh, India and plants were authenticated and preserved for the further studies.

Plant extraction: Extraction was carried out at room temperature under normal conditions. Combined crude powder of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* and passed through sieve 60#. 100gms of the sived power was weighed accurately and subjected to extraction in a Soxhlet apparatus at room temperature using petroleum ether (60-80°), chloroform and methanol successively. Before extraction with the next solvent the powder was air dried remove the adhering solvent. The extract obtained was filtered, concentrated in rotary flash evaporator and dried in a vacuum oven, percentage yield of each extract was calculated and dried extract was stored in air tight container for further studies. Phytochemical test of chloroform and methanolic extract reveals the presence of glycoside, flavonoids and phenolic constituents.

Preparation of test solution: Dry extraction were dissolved in sterile Dimethyl sulphoxide (DMSO AR Grade) and prepared final concentration of 5gm/ml for disc diffusion assay for broth micro dilution technique. All extracts were sterilized by passing through a 0.45mcm membrane filter.

Micro-Organisms: Bacteria causing infectious diseases both in animals and humans were used in the present study. They were both gram-positive and gram-negative. The bacteria strains used in the study were *Escherichia coli* NCIM 2109, *Proteus mirabilis*, *Proteus aureus*, *Klebsiella pneumonia* and *Staphylococcus epidermidis*. All the bacterial Strains were grown and maintained on nutrient agar slants.

Screening of Anti microbial activity of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa*: Disc diffusion method was carried out to evaluate the antimicrobial activity by using Muller Hinton agar. Sterile filter paper disc Whatmam (No.1 6mm) was impregnated with 100mcL of each extract (10mg/ml and 20mg/ml) to give a final concentration of 1.0mg/ml. The discs are properly placed on already seeded as negative control and standard were used as a standard to compare antibacterial and antifungal potential of extracts respectively. All the plants were incubated for 24hrs at 37±0.5°. The antibacterial activity of the combined methanolic extracts was tested.

Table.1. Antimicrobial activity of combined methanolic extracts of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* against selected micro organisms

Micro organism	Zone of inhibition(mm) for various concentrations of extract					
	0.625 mg/ml	1mg/ml	2mg/ml	5mg/ml	10mg/ml	Standard
<i>E. coli</i>	9	10	10	13	16	19
<i>P. mirabilis</i>	7	8	9	12	13	16
<i>P. aureus</i>	8	9	12	14	16	17
<i>K. pneumoniae</i>	7	9	12	14	18	17
<i>S. epidermidis</i>	8	9	11	14	17	18

RESULTS AND DISCUSSION

The presence of either of glycosides, flavonoids or phenolic compounds of typhonium trilobatum is responsible for antimicrobial activity. Hence it can be concluded combined methanolic extracts of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* possess a powerful antimicrobial action against all the microbes were tested against standard. This also stands as a scientific support for the usage of this plant for treating fever and in traditional medicine.

CONCLUSION

Microbes of increasing resistance towards these drugs so require a new agent have antimicrobial activity. So it was concluded that the antimicrobial activity of combined extracts of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* extracts were tested. The Combined methanolic extracts of *Acalypha hispida*, *Acalypha nervosa* and *Acalypha fruticosa* were found to be posses' powerful antimicrobial activity against the selected test organisms with standard.

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