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QUALITATIVE STUDY ON METHANOL EXTRACT OF *VETIVERIA LAWSONII*

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ABSTRACT

Plants are the important sources of newly derived drugs for the treatment of various diseases in India. The present study was focused the qualitative investigation of *Vetiveria lawsonii*. The methanol extract was prepared by Soxhlet extraction and the qualitative investigation revealed the presence of Flavonoids, Terpenoids, Saponins, Phytosterols, Proteins, Steroids and Anthocyanins. The Agar well diffusion method showed that the methanol extract of *Vetiveria lawsonii* having high Antimicrobial activity against the microbes. Hence, we can conclude that the methanol extracts of *Vetiveria lawsonii* was possess Antimicrobial activity.

KEYWORDS

Vetiveria lawsonii, methanol extract, microbes, Agar well diffusion method and Soxhlet extraction.

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INTRODUCTION

From the pre-historic time, the Indian medicinal plants have been used in siddha, ayurveda and unani. The plants from Poaceae family are having high medicinal values. *Vetiveria lawsonii* is a plant belongs to Poaceae family which also termed as *Chrysopogon lawsonii (Hook.f.) Veldkamp*. There was no report about antimicrobial activity of this plant confirmed by literature review. Hence, in the present study the methanol extract of *Vetiveria lawsonii* was evaluated for their antimicrobial activity [1-3].

MATERIAL AND METHODS

Collection of identified Plant material

The powdered plant material of *Vetiveria lawsonii* were collected from Sri Venkateswara Agencies, Siddha & Ayurvedic Medical in Tiruchirappalli District, Tamilnadu State, India and authenticated by Dr. K. G. Sathishbabu, M.D., (Siddha), Tiruchirappalli District, Tamilnadu State, India. The plant material was used for the study.

Preparation of Flower Extracts

The Methanol extract was successively prepared by hot continuous percolation method in 1:10 (w/v) ratio by Soxhlet extraction and concentrated. Then it was subjected to dryness to yield crude residue. This residue was employed for Antimicrobial evaluation.

Phytochemical Evaluation

The presence of phytochemicals was confirmed by the standard methods of J.B. Harborne.

Microbial strain

For the evaluation, the pure microbial strain cultures were collected from the Biotechnology Laboratory of Bishop Heber College, Tiruchirappalli (Ref. No.:BHC-BT-CTS03/2014/NMC) and used. The gram-positive and gram-negative bacteria's namely *E.coli, Proteus sp., Streptococcus sp.* and *Klebsiella sp.* were taken for this investigation and they were cultured on Nutrient Agar (Hi Media) Slants at 4˚C. In this evaluation, Streptomycin (100µg/mL) was used as a reference standard[4].

Antibacterial assay

The antibacterial activity assay of plant extract was performed by Agar well diffusion method. 20mL of sterile muller Hinton agar (Hi Media) was poured in sterile petri dishes. The plates were allowed to solidify and used. 10mL of sterilized Muller Hinton agar medium (Seed Agar) was seeded with organisms (about 0.2mL according to 0.5 McFarland's standard), in semi hot conditions and was poured uniformly on the base agar. 8mm bores were made each equal distance from one another on the medium using sterile borer and 100µL of different urine preparation were added to respective bore. The plates were incubated at 37°C for 24 hrs and zone of inhibition were measured. For each test, three replicates were performed. Here an attempt was made to compare the antibacterial efficiency of flower extract along with activity of standard antibiotic [5-7].

RESULTS AND DISCUSSION

The preliminary phytochemical evaluation revealed the presence of various phytochemicals such as Flavonoids, Terpenoids, Saponins, Phytosterols, Proteins, Steroids and Anthocyanins. The results of this analysis are given in Table No.1.

The results of Antimicrobial study are given in Table No.2. The Methanol extract was exhibited maximum potential against *Klebsiella sp.* (15mm) and minimum potential against *Proteus sp.* (7mm).

The photographs of the result of Antibacterial potential of Methanol extracts are presented in Figure No.1.

The results revealed that the Methanol extract is potent antimicrobials against the test organism. The antibacterial activity was observed from the zone of inhibition. The preliminary evaluation emphasizes further research to describe the bioactive compounds involved for their antimicrobial activity and to evaluate their other pharmacological activities of the plant.

Table No.1: Results of Preliminary Phytochemical analysis of *Vetiveria lawsonii*

S.No	Compounds	Ethanol Extracts
1	Alkaloids	-
2	Flavonoids	+
3	Carbohydrates	-
4	Saponins	+
5	Phenols	-
6	Tannins	-
7	Terpenoids	+
8	Proteins	+
9	Cardiac Glycosides	-
10	Steroids	+
11	Anthocyanins	+
12	Aminoacids	-
13	Phytosterols	+

+: Indicates the presence of phytoconstituents, -: Indicates the absence of phytoconstituents

Table No.2: Result of Zone of inhibition of Antibacterial activity of Methanol extracts of *Vetiveria lawsonii*

S.No	Name of the bacteria	Mean Zone of Inhibition of Methanol Extract
		(mm)
1	*E.coli*	8
2	*Proteus sp.*	7
3	*Streptococcus sp.*	8
4	*Klebsiella sp.*	15

Figure No.1: Photograph of a dish showing zone of inhibition of Methanol extracts

CONCLUSION

It has been concluded that the Methanol extracts of the *Vetiveria lawsonii* showed significant antimicrobial activity against selected microbes by Agar well diffusion method.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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