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ANTIMICROBIAL AND ANTHELMINTIC ACTIVITY OF *CANSJERA RHEEDII* STEM EXTRACT

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ABSTRACT

Solvent stem extract of *Cansjera rheedii* was tested and studied for its antimicrobial and anthelmintic activity. The petroleum ether and n-butanol extracts showed high inhibitory activity against *Bacillus subtilis*. The ethanolic extract of *cansjera stem* showed good anthelmintic activity. Antimicrobial and anthelmintic activities of the extract were compared with that of the standard drugs-Ciprofloxacin, Griseofulvin and Albendazole.

KEY WORDS: *Cansjera rheedii*, Antimicrobial activity, Anthelmintic activity, Solvent extraction.

1.INTRODUCTION

Many antibiotics have more effect to destroy the bacteria as well as produce side effects. In order to reduce side effects of some drugs the need of traditional medicines is increasing because naturally occurring medicines do not produce hazards to health. To solve the problem, in my analysis, antimicrobial and anthelmintic activities of *Cansjera rheedii* were studied (Chopra,1965). The plant *Cansjera rheedii* (Opiliaceae) commonly named as Mallimadugu teega or Adavi karedu in Telugu commonly grown in slopes and altitudes of forest in all over Chittoor District, A.P., India and abundant at Japalitheertham area (Tirumala), A.P., India. It plays an important role to cure many diseases like diabetes, jaundice, cancer and kidney stone problems (Madhava Chetty,2008). To the best of our knowledge no report is available on the antimicrobial and anthelmintic activity of *Cansjera rheedii* stems. As there is no reference in literature regarding the antimicrobial, anthelmintic aspects, it was considered worthwhile to investigate the antimicrobial and anthelmintic properties of the stems of *Cansjera rheedii* by its extraction with the various organic solvents and screening the resultant extracts for the antimicrobial and anthelmintic activities.

2.EXPERIMENTAL

Collection and extraction of stems: The plant stems were collected in July 2008 from Japalitheertham area (Tirumala), A.P., India forest and the plant was authenticated by Dr. Madhava Chetty, Assistant Professor, Botany Department, Sri.Venkateswara University, Tirupathi, A.P., India. The stem of the plant were removed, dried under shade and powdered in a mechanical grinder. 25 gm of powdered extract (Pulok,1995) were soaked in petroleum ether, ethanol, n-butanol, methanol, chloroform, water, ethyl acetate and benzene separately for 10 days. Then extracts were separated from the sample solution by separating funnel and concentrated (Caceres,1995). All chemicals and reagents used for study of antimicrobial and anthelmintic activities are of analytical grade.

Antimicrobial activity: The extracts thus obtained from the stems of *Cansjera rheedii* were tested for the antimicrobial activity against the following organisms *Bacillus Subtilis* NICIM 2493, *Flavobacterium tegeticola* NICIM 77765, *Serratia rubidae*, *E.Coli* NCIM 2068, *Streptomyces species*, *Flavobactirum oxysporum*. The activity was compared with that of standard drugs Ciprofloxacin and Griseofulvin.

Anthelmintic activity: The anthelmintic activity was evaluated on adult Indian earth worms, *Pheretima Posthuma* collected from Dilshuknagar, Hyderabad, due to its anatomical and physiological resemblance with the intestinal round worm parasites of human beings (Vidyarthi,1977; Thorn,1977; Vigar,1984). The method of Mathew 1995), Dash (2002;2003) was followed for anthelmintic screening. The activity of aqueous extract and ethanolic extract was compared with that of the effects produced by standard drug Albendazole.

3.RESULTS AND DISCUSSION

Antimicrobial activity of *Cansjera rheedii* stem extract was studied by employing disc paper method (Mathew,1995). All extracts were dissolved in DMSO (Dimethyl sulphoxide) and used in the concentration of 200 µg/ml. The diameter of the disc is 8mm. Ciprofloxacin and Griseofulvin at 10 µg/ml were used as standards for antibacterial and antifungal activities respectively. Antimicrobial activity was determined based on the inhibitory zones around the colonies. Petroleum ether extract and n-butanol extract exhibited good antimicrobial activity and it is compared with standard antibiotic Ciprofloxacin and results are shown in Table-1. Anthelmintic activity of the aqueous and alcoholic extracts was evaluated. Aqueous extract showed good anthelmintic activity (Table -2) and the activity is compared with the effect produced by reference standard drug Albendazole. The data in the Table-2 reveals significant anthelmintic activity of *Cansjera rheedii* stem extract.

4.CONCLUSION

The present study revealed that the plant *Cansjera rheedii* stem possesses good antimicrobial and anthelmintic activities and the work is still under progress to explore the chemical nature of the active constituents and other pharmacological investigations are also under evaluation.

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TABLE 1: ANTIMICROBIAL ACTIVITY OF *CANSJERA RHEEDII* STEM EXTRACT

Micro-organisms	Zone of inhibition (mm)								Standard Drugs	
	Solvent Extracts								Cpr.	Gri.
	P.ether	n-butanol	Methanol	Chloroform	Water	E.acetate	Benzene			
<i>Bacillus subtilis</i>	17	17	13	14	9	12	11	18	NA	
<i>Flavobacteriu m tegeticola</i>	7	9	9	8	10	9	11	NA	NA	
<i>Seretia rubidiae</i>	14	10	13	8	9	12	11	20	NA	
<i>Streptomyces sp.</i>	7	11	8	9	6	12	11	21	NA	
<i>E. coli</i>	9	10	13	9	9	13	12	26	NA	
<i>Flavobacteriu m oxysporium</i>	8	7	9	6	6	8	7	0	20	

The disc diameter 8 mm. is subtracted from readings, NA denotes no activity, Cpr. and Gri. Indicate Ciprofloxacin and Griseofulvin

Table 2: ANTHELMINTIC ACTIVITY OF *CANSJERA RHEEDII* STEM EXTRACT

Type of extract	Dose (mg/ml)	Time taken for paralysis (min)	Time taken for death (min)
Ethanolic	5	70 ± 0.35	120 ± 0.50
	10	38 ± 0.75	85 ± 0.32
	20	30 ± 0.45	52 ± 0.50
Aqueous	10	63 ± 1.2	120 ± 0.40
	20	40 ± 0.50	68 ± 0.50
Albendazole (Standard Drug)	10	30 ± 0.50	65 ± 0.92
Vehicle (Distilled Water)	-----	-----	-----

REFERENCES

Caceres A, Jauregui M, Menendx E, Cobobon E, Samayoa E, Perlante E and Carriollo G, J. Ethanopharmacol., 48, 1995, 85.

Chopra R.N, Nayar S.L and Chopra C, Glossary of Indian Medicinal Plant, CSIR publications, New Delhi, India, 1965, 24.

Dash G.K, Suresh P, Sahu S.K, Kar D.M, Ganapathy S and Panda S.B, J.Natural Remedies, 2, 2002, 182.

Dash G.K, Mishra B, Panda A, Patro C.P and Ganapathy S, Indian J.Nat.Prod., 19, 2003, 24.

Dr. Madhava Chetty, Sivaji K, Tulasi Rao K, Flowring plants of Chittor district, A.P., India, 2008, 317.

Mathew A.S, Patel K.N and Shah B.K, Indian J.Nat.Prod., 14, 1995, 11.

Pulok K.M, Alisha K, Giri S.N, Pal M and Saha B.P, Indian J.Microbiolo., 35, 1995, 327.

Thorn G.W, Adams R.D, Braunwald E, Isselbacher K.J and Petersdorf R.G, Hartrison's Principle of Internal Medicine, McGraw Hill Co., New York, 1977, 1088.

Vidyarthi R.D, A Textbook of Zoology, (14th Ed), S.Chand and Co., New Delhi, 1977, 329.

Vigar Z, Atlas of Medical Parasitology, (2nd Ed), P.G.Publishing House, Singapore, 1984, 216.