



NOTE

Antimicrobial Activity of *Terminalia sericeae* Burch. exDC.

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The methanolic extract of the leaf and bark of *Terminalia sericeae* was tested for antimicrobial activity on *Staphylococcus aureus*, *Staphylococcus subtilis*, *Streptococcus mutans*, *Streptococcus anginosus*, *Lactobacillus acidophilus*, *Micrococcus luteus*, *Bacillus subtilis*, *Escherichia coli*, *Erwinia*, *Enterobacter aerogenus*, *Klebsiella pneumoniae*, *Proteus vulgaris*, *Pseudomonas aeruginosa* and fungi are *Rhizopus*, *Aspergillus niger*, *Saccharomyces cerevisiae*, *Mucor*, *Rhizoctonia solanic*, *Candida albicans* and *Pencillium chrysogenum* at 100, 300 and 500 mg/kg dose levels. Both the extracts showed considerable activity. For testing, Agar cup plate method was used and chloramphenicol (10 mg/mL) and fluconazole (1 mg/mL) as standards.

Key Words: *Terminalia sericeae*, Antimicrobial activity.

The genus *Terminalia* is known as folklore medicine to treat bacterial infection¹⁻⁴, hypcholesterolaemic, coronary artery disease and inflammatory conditions⁶. A good number of its species have also been examined for antibacterial and antifungal activities and found promising results. Hence, it is proposed to evaluate the antimicrobial activity of *Terminalia sericeae*, a combretaceae member.

The plant material, both the leaves and bark of *Terminalia sericeae* were collected from Tirupathi (Chittoor district), Andhra Pradesh, India and was authenticated by Prof. Madhavasetty, Department of Botany, Sri Padmavathi Mahila University, Tirupathi, A.P.

These [leaves, barks(1 kg each)] were air dried, coarsely powdered and extracted with methanol in soxhlet extraction apparatus and concentrated under vacuum to a small residue (leaf extract-15 g, bark extract-9 g).

The tested organisms *Staphylococcus aureus*, *Staphylococcus subtilis*, *Streptococcus mutans*, *Streptococcus anginosus*, *Lactobacillus acidophilus*, *Micrococcus luteus*, *Bacillus subtilis*, *Escherichia coli*, *Erwinia*, *Enterobacter aerogenus*, *Klebsiella pneumoniae*, *Proteus vulgaris*, *Pseudomonas aeruginosa* and *Rhizopus*, *Aspergillus niger*, *Saccharomyces cerevisiae*, *Mucor*, *Rhizoctonia solanic*, *Candida albicans*, *Pencillium chrysogenum* were freshly prepared from the Department of Microbiology, Andhra University, Visakhapatnam.

Preparation of cultures: All the bacteria mentioned above were incubated in Nutrient broth at 37 ± 0.1 °C for

24 h and fungi in potato dextrose broth at 25 ± 0.1 °C for 24 h. The bacteria and fungi were transferred into petri dishes in the amount of 0.01 mL into nutrient agar and potato dextrose agar and were homogenously distributed in the sterilized petridishes³. The petri dishes were left at 4 °C for 2 h and then the plates inoculated with bacteria were incubated at 37 ± 0.1 °C for 24 h, plates inoculated with fungi were incubated at 25 ± 0.1 °C for 48 h³⁻⁶. This study was carried out in duplicate for each test strains and the average measurement were calculated.

The methanolic extract of *Terminalia sericeae* leaf and bark was tested on 12 bacterial stains and 6 fungi using agar diffusion method. Antimicrobial effect was observed on all the tested organisms including fungi. *Pseudomonas aeruginosa*, *Bacillus subtilis*, *Staphylococcus aureus*, *Streptococcus mutans*, *Klebsiella pneumoniae*, *Erwinia* were found to be very sensitive to the tested extracts (Table-1).

Conclusion

The present results indicated that the leaf and bark extracts of *Terminalia sericeae* were found inhibitory activity on both bacteria and fungi. Hence, the folklore claim was substantiated by this study.

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TABLE-1
ANTIBACTERIAL AND ANTIFUNGAL ACTIVITIES OF *Terminalia sericeae* LEAF AND BARK EXTRACTS

Organisms	Diameter of inhibition zone (mm)									
	<i>Terminalia sericeae</i> leaf methanolic extracts					<i>Terminalia sericeae</i> bark methanolic extracts				
	100 (mg/mL)	300 (mg/mL)	500 (mg/mL)	Standards	Control	100 (mg/mL)	300 (mg/mL)	500 (mg/mL)	Standards	Control
				Ch P	Me				Ch P	Me
<i>Bacillus subtilis</i>	18	22	25	50	9	17	19	23	46	9
<i>Streptococcus mutans</i>	17	18	18	35	10	14	20	21	40	9
<i>Micrococcus lutes</i>	12	15	17	30	10	16	21	23	30	10
<i>Lactobacillus acidophilus</i>	12	16	18	30	10	14	19	21	40	10
<i>Staphylococcus aureus</i>	17	18	19	27	9	16	18	24	34	10
<i>Streptococcus anginosus</i>	10	12	13	34	9	12	17	22	40	9
<i>Erwinia</i>	16	18	19	15	8	12	13	18	40	10
<i>Enterobacter aerogens</i>	16	22	–	25	10	15	16	21	40	9
<i>Proteus vulgaris</i>	13	17	19	29	9	13	19	21	30	10
<i>Klebsiella pneumoniae</i>	12	14	15	30	12	16	20	22	28	11
<i>Pseudomonas aeruginosa</i>	20	25	27	45	14	16	19	23	24	9
<i>Escherichia coli</i>	14	18	21	20	10	11	13	18	20	9
				Flu	Me				Flu	Me
<i>Rhizoctonia solanic</i>	12	13	14	17	12	12	16	23	28	9
<i>Mucor</i>	12	13	16	15	8	11	12	16	30	10
<i>Candida albicans</i>	11	12	15	18	8	12	17	23	26	10
<i>Rhizopus</i>	12	13	16	17	9	14	16	22	32	10
<i>Aspargillus niger</i>	11	12	14	15	11	10	13	15	26	10
<i>Saccharomyces cerevisiae</i>	12	13	16	14	9	10	17	23	30	9

Ch P = chloramphenicol, Flu = fluconazole, Me = methanol, Con = control.

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