

Antimicrobial activity of *Ficus benghalensis* in cosmetic application

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Declaration

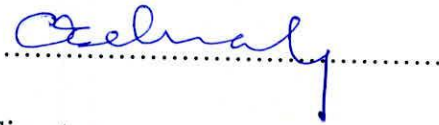
The work described in this thesis was carried out by me under the supervision of Prof.R.L.C.Wijesundera, Dr.Selvaluxmy Chelvendran and Dr.Asiri Perera and a report on this has not been submitted in whole or in part to any University or any other institution for another degree.

.....*Nisula yalin*.....

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ABBREVIATIONS

α	alpha
β	beta
μ	micro
μl	microlitre
mg	milligram
ml	millilitre
$^{\circ}\text{C}$	degrees Celsius
sp.	species
mm	millimetre
g	gram
l	litre
h	hour
viz.	videlicet
DMSO	Dimethyl sulphoxide
BUN	Blood Urea Nitrogen
<i>A.niger</i>	<i>Aspergillus niger</i>
<i>C.cassicola</i>	<i>Corynespora cassicola</i>
<i>C.gloeosporioides</i>	<i>Colletotrichum gloeosporioides</i>
<i>C.albicans</i>	<i>Candida albicans</i>
<i>B.subtilis</i>	<i>Bacillus subtilis</i>
<i>S.aureus</i>	<i>Staphylococcus aureus</i>
<i>E.coli</i>	<i>Escherichia coli</i>
<i>K.pneumonia</i>	<i>Klebsiella pneumonia</i>
PDA	Potato dextrose agar

DEDICATION

I dedicate this thesis to my dearest parents for showing patience and understanding while I was undertaking this work. Without your help and support I could not have achieved this.

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Antimicrobial activity of *Ficus benghalensis* in cosmetic application

ABSTRACT

Methanol extract of aerial root, bark and leaf of *Ficus benghalensis*, were screened for Antimicrobial activity using Agar disc diffusion method against five bacterial species (*Bacillus subtilis*, *Streptococcus* sp., *Staphylococcus aureus*, *Escherichia coli*, and *Klebsiella pneumonia*) and four fungal species (*Aspergillus niger*, *Corynespora cassicola*, *Colletotrichum gloeosporioides* and *Candida albicans*). All three plant part extracts inhibited the growth of gram positive bacteria as well as gram negative bacteria. Among the tested microbial strains bacteria were found to be more sensitive than fungi. The methanol extracts of aerial root and leaf are potent against *Candida albicans*. Aerial root and bark of *Ficus benghalensis* were extracted with methanol and fractionated by using non polar solvent to polar solvent using vacuum liquid chromatography and the fractions were collected separately and the solvent was evaporated. Antibacterial activity of different fractions of *Ficus benghalensis* aerial root and bark extract was evaluated by Agar disc diffusion method. All the fractions of bark and aerial root showed greater inhibitory activity than the crude extracts.

Plant based therapeutic preparations are cyclically returning to complement dermatologic therapy. The dermatotoxicity of *Ficus benghalensis* fractions of aerial root and bark was investigated in wistar rats for the presence of erythema, oedema and any allergic reactions. The patch test results showed there is no significant toxic effect on dermal application.

Hence, it can be concluded that this plant can be used to discover bioactive natural products that may serve as leads in the development of new cosmetic and pharmaceuticals that address unmet therapeutic needs.