

**NEUTRALIZATION OF SNAKE VENOM BY PLA₂ AND PROTEASE
ACTIVITY USING THE BIOACTIVE PRINCIPLE ISOLATED FROM
*NOTHAPODYTES NIMMONIANA***



A Research Project Carried-out under the sponsorship of

KSCST - 35TH SERIES OF STUDENT PROJECTS PROGRAMME

Submitted to KSCST for final Project Presentation program

KARNATAKA STATE COUNCIL FOR SCIENCE & TECHNOLOGY (KSCST)

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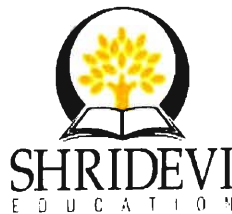
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2012

ABSTRACT

'Snake venom' has been the important cause of Mortality and Morbidity which is one of the major health problem leading to death every year. In the present study, An Ethno-medicinal plant, *Nothapodytes nimmoniana* has been identified for its efficacy against Snake bite and it being practiced by Traditional healers. The plant belongs to the family of 'Icacinaceae' and its common name in Kannada is 'Durvasane Mara'. The plant was subjected for evaluation of preliminary Physicochemical, Phyto-Chemical, Antimicrobial, Antioxidant, and Anti Venom activity.

The result reveals that, the leaf of selected Ethno-medicinal plant, *Nothapodytes nimmoniana* was taken to evaluate the Pharmacognostic status through Physico-chemical and Phyto-chemical analysis. The percentage of Acid insoluble ash, Water soluble ash and Total ash were analyzed in the leaf powder. The ash of the plant was shown as fine Powder and the presence of these contents indicates efficiency of active status of Pharmacognostic, Authenticity of the plant constituents towards preparation of drug. Percentage of ash value was highest in acid followed by and cold water and Petroleum ether.

The preliminary Phyto-chemical parameters viz, Proteins, Flavonoids, Total sugars, Ascorbic acid and Polyphenols were analyzed for their active presence in the organic solvents like, cold water, hot water, Methanol, 50% Ethanol, Ethanol (absolute), Hexane, Petroleum ether, Ethyl acetate showed the presence of active primary and secondary metabolites in the leaf extracts of *N. nimmoniana*. These may have profound activity and justifies the status for preparation of potential drug. In addition, determination of extractive values, ash residues and active components (saponins, alkaloids and glycosides content) plays a significant role for standardization of the indigenous crude drugs. The qualitative primary metabolite analysis showed presence of protein in cold water extract followed by Ethanolic, Methanolic, Petroleum ether, Ethyl acetate and Hexane extract respectively. Similarly, carbohydrate was present in *cold water, Ethanolic, Methanolic Extracts*. The qualitative secondary metabolite analysis showed presence of phenols in cold water extracts followed by *Ethanolic, Methanolic extracts*. The Antimicrobial activity was tested for the different solvent leaf extracts against gram positive *Staphylococcus aureus* and gram negative *Pseudomonas aeruginosa, Escherichia Coli, Salmonella typhi* and exhibited positive results against *Staphylococcus aureus, Salmonella typhi*, the zone of inhibition was found to be 17 ± 0.7 , and 18 ± 0.8 cm respectively. The findings supports the traditional practice against Pathogenic microorganisms could also be of

commercial interest to both pharmaceutical companies in the production of new antimicrobial drugs. The Antioxidant activity has been evaluated by ABTS, TBARS and Hydroxyl scavenging assay method. The selected ethno medicinal plant, *N.nimmoniana* has significant Antioxidant activity at significant level. Ethno medicinal plants contain generally different phenolic compounds with different amount of antioxidant activity. The antivenom activity was tested for the enzymes like PLA₂ and Protease which are present in the Snake venom by interacting the protein of both *Naja naja naja* with plant protein. Then, the Anti-PLA₂ and Antiprotease activity was done in order to neutralize the effect of PLA₂ and Protease.

Plants efficacy to neutralize Snake venom may be due to certain active chemical compounds possessing Anti-lethal effects. Among them *Terpenoids, Flavonoids, Polyphenols, Total sugars and Ascorbic acid* have contributed significantly as Anti-venom potential. Therefore multi-functionality of *Nothapodytes nimmoniana* has built an illustration in the capacity of such chemical substances to stick to proteins. Hence, obstruct the functions of many macromolecules. However, it can be suggested that these substances are responsible for observed protection, but the time has come to validate pharmacologically traditional evidences for this Ethno-medicinal plant as antidote for Snake victims. Therefore, the Ethno-medicinal plant drug has high potential active constituent in treating snake bite which can be explored further through analyzing mechanism of action by novel lead molecule which would be most beneficial for human welfare.