

### UGC Major Research Project –Summary

<b>Title of the Project</b>	:	‘Bioprospecting of two endemics of Asteraceae from Konkan corridor of Western Ghats, India’
<b>Ref. No.</b>	:	F. 42-977/2013 (SR) dated 14 March 2013
<b>Name of the Principal Investigator</b>	:	Dr. Vinod B. Shimpale M. Sc., Ph.D., FIAAT
<b>Funding Agency</b>	:	University Grants Commission, New Delhi
<b>Total Amount of the Project</b>	:	10,62,300/-
<b>Duration of the project</b>	:	04 years (April 01, 2013 to march 31, 2017)
<b>Publications in the project 02</b>	:	1. One Research paper is published in SCI indexed research journal. 2. Two research papers are communicated on the project work. 3. Project research work is presented in about 04 different National and international conferences.

#### Summary of the findings:

Great agriculturist of India Prof. M. S. Swaminathan has rightly quoted that,

**“Our national food security depends on our ability to conserve all our biological wealth”**

Folk medicines are gaining importance because there have been number of side spectacular success with herbal medicines. Now a daysmajority of synthetic drugs have very effective side effects and also known drugs are becoming ineffective and hence there is need of synthesis of new drugs which are basically plant origin. Most of the populations of developing countries have relied and will continue to rely on indigenous plant based medicines. Therefore, we must respect, restudy and evaluate our indigenous systems of medicine in the light of modern developments in science. In India two traditional medicine streams are present i.e. the classical systems of medicine and the local health tradition (LHT). It is estimated that Local Health Tradition (LHT) use more than 8000 plant species and majority of the species are not scientifically screened and therefore it offers excellent opportunity for researcher and scientists to undertake thorough investigations on these lesser known but locally important medicinal plants. In present piece of work emphasis has been given on isolation, characterization of some important secondary metabolites for their sustainable utilization. Both the plant species are screened for their antioxidant activities and anti-TB activities. All these studies will be useful to the society as well as all pharmaceutical sectors to isolate and formulate a new drug from these plant species.

The present research is an attempt at Bioprospecting of two endemics of Konkan corridor Western Ghats, India. In the presence piece of work screening of phytochemicals, antioxidant activity in vitro by DPPH, H<sub>2</sub>O<sub>2</sub>, reducing power assay method, Isolation bioactive compound, antimicrobial in Agar well diffusion method and anti-tuberculosis activity were carried out.

- 1) The phytochemical investigation of phenol, flavonoid, saponnin, alkaloid, tannin, protein, metal analysis were done in organize to plant extracts of these two plants. In the middle of the studied parameters both plant showed highest amount of saponnin followed by alkaloid content while both the plant species showed low tannin content.
- 2) Both plants were screened for antioxidant activity by using different solvents like methanol, acetone, and ethanol of plant extracts. In all the solvent *Adenoonindicum* and *Lamphracheniummicrocephalum* species showed significant antioxidant activities.
- 3) Ethanol, methanol, acetone, plant extracts were screened for free radical scavenging probable in vitro, free radical scavenging screened by DPPH, H<sub>2</sub>O<sub>2</sub>, and reducing power assay method. It is experimental that both the species showed considerable activity in all premeditated methods.
- 4) During present investigation both the species viz. *Adenoonindicum*&*Lamphracheniummicrocephalum* were analyzed for a variety of activities by using different solvents. Auxiliary to know the allocation of these important chemical compounds in the whole plants were individually for their phytochemical parameters. Total antioxidant activity potential of *Adenoonindicum*&*Lamphracheniummicrocephalum* was tested by DPPH, H<sub>2</sub>O<sub>2</sub>, and Reducing power assay. It was observed that the methanolic extracts possessed higher antioxidant potential followed by ethanol and acetone extracts.
- 5) *Adenoonindicum*&*Lamphracheniummicrocephalum* plant methanolic extracts was found to be more effective against antioxidant, antimicrobial, antituberculosis activity.
- 6) Based on the consequences it is felt required to transmit out supplementary studies of isolation and characterization for methanolic extracts of both plants for exploration of expensive chemical components.
- 7) Preparative TLC of in vivo in methanol extracts produced 4 fraction in *A.indicum* and 3 fractions from *L.microcephalum*. Based on Rf value, fraction separated from both plant extracts is found to belong different compound.
- 8) The fraction also confirmed the presence of compound as interpreted by the peaks obtained in the HPLC chromatogram along with the standards (Gallic acid, quercetin) contents of the fractions were quantified and expressed as the amount of standard equivalents.

- 9) GC-MS analysis of both plants showed 8 compounds were identified. The chemical library analysis results showed Peroxide compound major present *L.microcephalum* and benzenecetic acid highly present *A.indicum* plant extracts.
- 10) Functional groups of the compound were found and the presence of OH, C=O, NH<sub>2</sub> stretching, deformation along with alkane, ester, amide, ketone were found in the identified compounds of *A.indicum* & *L.microcephalum*
- 11) In future studies will be concentrated on analysis of different active compounds with nuclear magnetic resonance for identification of its molecular structure.

Sd/-

**Dr. Vinod B. Shimpale**  
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