



Bacterial Endo-Symbiont Inhabiting *Durio zibethinus* leaves and their Antibacterial Potential

Sridevi Chigurupati^{1*}, Muralidhar Reddy Marri²,
Ashok kumar³, Appal Raju Nemala⁴, Sitansu Sekhar Nanda⁵,
Shantini Vijayabalan⁶, Kesavanarayanan Krishnan Selvarajan⁷

¹Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, Qassim University, Buraidah 52571, Kingdom of Saudi Arabia.

²Project Manager Executive, Vimta labs, 142, IDA, Phase II, Cherlapalli, Hyderabad, Telangana, 500051 India.

³Department of Pathology, Faculty of Medicine, AIMST University, Semeling, 08100 Bedong, Kedah, Malaysia.

⁴Department of Pharmaceutical Chemistry, Sultan–UI–Uloom College of Pharmacy, Hyderabad, Telangana, India.

⁵Department of Chemistry, Myongji University, Yongin, South Korea.

⁶Department of Pharmaceutical Chemistry, Faculty of Pharmacy, AIMST University, Kedah, Malaysia.

⁷Department of Pharmacology & Toxicology, College of Pharmacy, University of Hail, Hail, Kingdom of Saudi Arabia.

Abstract : Drug resistance in bacteria has become a global concern and the search for new antibacterial agents is urgent and ongoing. Endophytes provide an abundant reservoir of bioactive metabolites for medicinal exploitation, and an increasing number of novel compounds are being isolated from endophytes. In the present study, endophyte was isolated from the leaves of *Durio zibethinus*. The selected endophyte was identified by 16s rRNA partial genome sequencing and investigated for their antimicrobial activity. The preliminary phytochemical test was conducted for the affirmation of phytoconstituents in the endophytic crude extract (DZLM). Antimicrobial activity was assessed against seven human pathogenic ATCC strains. The Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) were recorded. The selected MIC dose was screened by Kirby-Bauer agar well diffusion method. The pre-screening of DZLM showed the presence of various phytoconstituents. DZLM exhibited the highest MIC and MBC of 250 µg/mL and 500 µg/mL respectively, against *Bacillus subtilis* and *Staphylococcus aureus*. At MIC of 250 µg/mL, DZLM portrayed significant inhibition zone against ATCC strains comparable to gentamicin. This study is the first report about the antimicrobial activity of endophyte residing in *Durio zibethinus* leaves able to produce bioactive agents with pharmaceutical potential and may provide a new lead in the pursuit of new biological sources of drug candidates

Keywords: *Durio zibethinus*, Endophytes, Preliminary screening, Quantitative analysis, Antibacterial.