

OP 08

Antibacterial Potential of *Myristica fragrans* (Nutmeg) Pericarp Extract Against Selected Bacterial StrainsWeerakoon W.M.T.^{1#}, Perera W.P.R.T.¹, Wanigasekara D.N.²¹Department of Indigenous Medical Resources, Faculty of Indigenous Health Sciences and Technology, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka²Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Sri Lanka

#Corresponding author: tharindra.chem1803@kln.ac.lk

Background: Due to the increasing bacterial resistance to currently available antimicrobial agents, there is a necessity to find out alternative antibacterial drugs with different chemical compositions and modes of action. Plant extracts play a significant role as potential antibacterial agents that can be developed into antibacterial drugs. *Myristica fragrans* (Nutmeg) is such a plant which has been used in indigenous medicinal systems as a medication for wound healing and diarrhoea.

Objectives: To investigate the *in vitro* antibacterial potential of *M. fragrans* pericarp which is a waste in spice production industry and to determine the Minimum Inhibitory Concentration (MIC) values and Minimum Bactericidal Concentration (MBC) values to determine whether the test extract is bactericidal or bacteriostatic.

Methods: Ethanolic extract of *M. fragrans* dried pericarp was tested against two Gram negative bacterial strains and two Gram positive bacterial strains namely *Staphylococcus aureus* (ATCC 29213), *Bacillus cereus* (ATCC 21366), *Escherichia coli* (ATCC 25922) and *Salmonella typhimurium* (ATCC 39183), respectively using MTT (3-(4, 5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay. Chloramphenicol was used as the positive control. Mixture without the extract was used as the negative control. The mechanism of antibiosis of the test extract was determined using MBC/MIC ratio. Statistical analysis was done by using IBM SPSS 23.0 software.

Results: All tested bacterial strains showed to be susceptible to ethanolic extract of *M. fragrans* pericarp extract. The obtained MIC values of *S. aureus*, *B. cereus*, *E. coli* and *S. typhimurium* are 550±27, 450±35, 425±34 and 375±23 mg/L, respectively. The MBCs are 1500±30, 1700±30, 1500±25 and 1700±30 mg/L. All strains were recognized as bacteriostatic.

Conclusions: These preliminary results disclose the ethnobotanical significance of *M. fragrans* pericarp and its potential to be used in antibacterial drug development.

Keywords: *M. fragrans* pericarp, MIC, MBC