Abstract No: 622 ***Health and Hygiene***

ANTI-CANDIDAL ACTIVITY OF *MYRISTICA FRAGRANS* AND ITS EFFECT AGAINST PHOSPHOLIPASE ACTIVITY

S.M. Rammandala[1]*, C.L. Abayasekara[1], G.J. Panagoda[2] and D.K. Kanatiwela[1]

[1]Department of Botany, Faculty of Science, University of Peradeniya, Sri Lanka
[2]Division of Microbiology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka
**srammandala@gmail.com*

Candidiasis caused by *Candida* spp. occurs on the skin, oral cavity, oesophagus, gastrointestinal tract, vagina and the vascular system of immunocompromised individuals. Development of resistance by microorganisms to synthetic antifungal compounds is one of the major problems associated with the treatment of candidiasis. *Candida* spp. especially *C. albicans* carries several virulence factors, *viz;* adhesion, germ tube formation and hydrolytic enzyme production. Phospholipase, which degrade phospholipids, the major components in biological membranes, is one such hydrolytic enzyme. Therefore, the main objective of this study was to determine the anti-candidal activity of *Myristica fragrans* (*M. fragrans* Myristicaceae), a plant widely available in Sri Lanka and to determine the effect on the phospholipase activity of *C. albicans*.

Ethanolic extracts of leaves, pericarp, mace and seeds of *M. fragrans* were prepared by vacuum infiltration, rotary evaporation followed by freeze drying. Anti-candidal activity of ethanolic extracts of plant parts were determined by the well diffusion bioassay against standard cultures of *C. albicans* (ATCC 90028), *C. glabrata* (ATCC 90030) and *C. krusei* (ATCC 6258). Minimum Inhibitory Concentrations (MIC) of ethanolic extracts against cell concentrations eqivalent to 0.5 McFarland standard of *C. albicans* (ATCC 90028), *C. glabrata* (ATCC 90030), *C. krusei* (ATCC 6258), *C. parapsilosis* (ATCC 22019) and *C. tropicalis* (ATCC 13803), were determined by the agar dilution method. Active constitutes responsible for anti-candidal activity were determined by bioautography agar overlaying. The effect against phospholipase activity of *C. albicans* was determined by the egg yolk agar method.

The seed, mace and leaf extracts had anti-candidal activity, while the pericarp had no anti-candidal activity. The MIC values of seed and mace against all *Candida* spp. investigated were 5.12 mg/mL except for *C. parapsilosis*, which was 2.56 mg/mL. MIC values were not obtained within the concentration range of 0.32 mg/mL to 5.12 mg/mL for leaf extracts against all five standard *Candida* spp. The bioautography agar overlay indicated an inhibition zone between Rf values of 0.82-0.96, which coincided with three bands in a TLC plate, sprayed with methanolic sulfuric acid. As previously reported the active compound in *M. fragrans* is Myristicin, with an Rf value of 0.91 may be responsible for anti candidal activity, along with at least two other constitutes. There was no significant (>0.05) effect on the phospholipase activity of *C. albicans* by the extracts investigated. In conclusion, seed and mace of *M. fragrans* possess a significant anti candidal activity, where myristicin is one of the active compounds.