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Comparative Study of Antioxidant and Antidiabetic Activities of Fresh and Processed Pericarp of *Myristica Fragrans* (Nutmeg)

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Myristica fragrans is a well-known medicinal plant in Sri Lanka. The pericarp of this fruit is a waste product, however becoming popular as a base for jams where fresh pericarp is used after processing. Present study is aimed to determine the total phenolic content, antioxidant and antidiabetic activities of extracts obtained from fresh and processed pericarp to evaluate the effect of cooking on medicinal values of the pericarp. Both processed and fresh pericarp was extracted into ethyl acetate and solvent was removed under reduced pressure to obtain dry extracts. Dry extracts were used to determine the total phenolic content (Folin-Ciocalteu method), antioxidant capacity (2, 2-diphenyl-1-picrylhydrazyl scavenging activity and ferric reducing antioxidant power) and antidiabetic activity (α -amylase and α -glucosidase enzyme inhibitory assays). Results indicated that the processed pericarp of nutmeg has an enhanced radical scavenging activity (IC_{50} = 78.9 μ g/mL; fresh pericarp IC_{50} = 112.0 μ g/mL), ferric reducing antioxidant power (154.3 μ g/mL ascorbic acid equivalent; fresh pericarp 122.8 μ g/mL) and highest total phenolic content (61.8 mg/g gallic acid equivalent; fresh pericarp 53.7 mg/g). Processed pericarp showed higher

α -amylase inhibition (IC_{50} = 338.3 μ g/mL) compared to that of fresh pericarp (IC_{50} = 376.1 μ g/mL). The fresh pericarp extract of nutmeg showed the higher α -glucosidase inhibitory activity (IC_{50} = 142.2 μ g/mL) compared to that of processed pericarp (IC_{50} = 214.6 μ g/mL). This study indicates that cooking process did not cause a negative impact on antioxidant activity, total phenolic content and α -amylase inhibitory activity of nutmeg pericarp. However processing caused a negative impact on α -glucosidase enzyme inhibition.

Keywords: α -amylase, α -glucosidase, Antioxidant