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### ***In vitro* anti-inflammatory and antioxidant properties of peel extract of selected fruits of the citrus family**

H. A. C. O. Hettiarachchi\*, K. D. P. P. Gunathilake and S. Jayatilake

Department of Food Science and Technology, Faculty of Livestock, Fisheries and Nutrition,  
Wayamba University of Sri Lanka, Makandura, Gonawila, (NWP), Sri Lanka

\*osh0626@gmail.com

The potential of citrus peel extract in delivering anti-inflammatory and antioxidant properties were evaluated using in-vitro assays. Methanolic extracts of freeze dried peels of *Ambul Dodam – Citrus aurantium*, *Lime – Citrus aurantifolia*, *Jama naaran – Citrus reticulata*, *Nas naran – Citrus madurensis*, *Heen naran - Citrus reticulata* were assessed using Lipoxigenase inhibitory assay, Folin-Ciocalteu assay and DPPH radical scavenging assay. The lipoxigenase enzyme inhibition of all citrus varieties were analyzed using two different concentrations 50 µg /mL and 75 µg /mL of peel extracts. The lipoxigenase inhibition levels were within the range of 7.97 % to 23.64 % for 50 µg /mL concentration of peel extracts. The lipoxigenase inhibition levels for 75 µg /mL concentration of peel extract were 6.98 % to 17.99 %. For both concentrations, the highest inhibition ( $23.64 \pm 1.96$  % for 50 µg /mL and  $17.99 \pm 2.48$  % for 75 µg /mL) was recorded for *Heen Naran*. Accordingly, the ascending pattern of percentage lipoxigenase enzyme inhibition for all citrus varieties was: *Lime < Jama Naran < Nas Naran < Ambul Dodam < Heen Naran*. According to the Folin-Ciocalteu assay the total phenolic contents of *Nas Naran* and *Jama Naran* were 471.00 and 1394.00 µg gallic acid equivalent per g dry weight of peel, respectively. DPPH radical scavenging activity of peel extracts of selected citrus fruit varieties ranged from 33.96 to 91.44 %. The percentage inhibition of DPPH radical for citrus peel extracts varied according to the order: *Lime < Nas Naran < Heen Naran < Jama Naran < Ambul dodam*. High percentage of DPPH radical inhibition may be due to the presence of higher phenolic content. Therefore, it can be concluded that the peels of the evaluated citrus species are having significant antioxidant and anti-inflammatory properties. The discovered potentials can be further studied for effective utilization of peel of citrus fruits in the food industry.

**Keywords:** Citrus peel, Anti-inflammatory, Antioxidant, Lipoxigenase inhibition, Folin-Ciocalteu

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