

COMPARISON OF WATER AND OIL ABSORPTION CAPACITIES OF PARTIALLY DEFATTED COCONUT TESTA FLOUR FROM SELECTED SRI LANKAN COCONUT CULTIVARS

S.S.K. Marasinghe^{1,2*}, J.M.N. Marikkar¹ and K.M.S. Wimalasiri³

¹National Institute of Fundamental Studies, Kandy, Sri Lanka

²Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka

³Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka

*sanjila.marasinghe@gmail.com

Coconut testa is the thin, brown outermost cover of the coconut endosperm. It is an under-utilized by-product of coconut processing industries. A partially defatted flour (CTF) was prepared using coconut testa with the aim of substituting wheat flour in baking. The aim of this study was to compare water (WAC) and oil absorption capacities (OAC) of coconut testa flour of four local cultivars namely San Raman (SR), Gon Thembili (GT), Ran Thembili (RT), TallxTall (TxT) against the Commercial hybrid (COM) grown in Sri Lanka. Fifty mature coconuts (12 months) from each cultivar were collected from Coconut Research Institute of Sri Lanka, Lunuwila during August to October 2018. Partially defatted coconut testa was dried and ground to obtain brown colour flour. Flour (1 g) was mixed with 10 mL of distilled water or soy bean oil and allowed to stand at ambient temperature for 30 min. Thereafter, it was centrifuged for 1 hr at 4,000 x g. The supernatant was discarded and the increase in weight of the flour was recorded. The WAC and OAC were recorded as % of water or oil bound per g of flour. The maximum WAC was recorded for SR ($320.00 \pm 6.08\%$) whereas minimum was reported for RT ($194.33 \pm 10.69\%$). The WAC of TXT and RT were statistically similar ($p > 0.05$), but significantly ($p < 0.05$) lower than those of SR, COM and GT. The highest OAC was recorded for COM ($142.67 \pm 2.52\%$) while lowest was noted for RT ($85.67 \pm 7.02\%$). The OAC of GT ($127.33 \pm 3.21\%$) and SR ($124 \pm 3\%$) was statistically similar ($p > 0.05$), but significantly ($p < 0.05$) higher than those of TXT ($97.33 \pm 3.21\%$) and RT ($85.67 \pm 7.02\%$). Statistically significant variations in WAC and OAC were observed among different cultivars of CTF suggesting the possible use in different food applications.

Keywords: Coconut testa, Flour, Functional properties, Oil absorption, Water absorption