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Physicochemical and Functional Properties of Anchote (*Coccinia Abyssinica* (Lam.) Cogn.) Tuber Flour as Affected by Pre- treatment and Drying Temperature

ADUGNA MOSISSA BIKILA¹, YETENAYET BEKELE TOLA², TAREKEGN BERHANU ESHO³,
SIRAWDINK FIKREYESUS FORSIDO⁴

¹*Jimma University, Post-harvest Management, Ethiopia*

²*Jimma University, Post-harvest Management,*

³*Addis Ababa Science and Technology University, Industrial Chemistry,*

⁴*Jimma University, Post-harvest Management, Ethiopia*

Abstract

Transformation of agricultural outputs into semi-processed and processed food materials is one of the current scientific demands. There might be changes in original property and composition of the product during processing. As part of this concern, physicochemical and functional properties of raw and pre-treated (blanched and boiled) anchote (*Coccinia abyssinica* (Lam.) Cogn.) tuber flours prepared by drying at different temperatures (60, 80, 100 °C) were evaluated. Anchote is a potentially productive and nutritious starchy tuberous crop indigenous to Ethiopia. A factorial experiment in a completely randomised design was employed to run the experiment. Ranges of the results for pH, total soluble solids (TSS), water absorption capacity (WAC), oil absorption capacity (OAC), water absorption index (WAI), water solubility index (WSI), swelling power (SP), foaming capacity (FC), foam stability (FS), total polyphenol content, and total flavonoid content were 5.70–6.47, 5.37–10.8 °Brix, 2.42–4.21 g/g, 0.94–1.44 g/g, 3.40–5.42 g/g, 11.40–20.37 %, 4.56–7.20 g/g, 3.31–33.33 %, 1.89–20.00 %, 0.22–0.80 mg GAE/g, and 0.12–0.44 mg CE/g, respectively. The results showed that both pre-treatment and drying temperature significantly ($p < 0.05$) affected the pH, TSS, WAC, OAC, WAI, WSI, SP, TPC and TFC of the flours. The pH, TSS, WAC, WAI, WSI and SP were higher in the flour prepared from boiled anchote dried at lower temperature; while OAC, FC and FS were higher in the flour obtained from the raw tuber. The flour obtained from blanched and boiled anchote dried at lower temperature exhibited better functional property relative to the raw. Therefore, this value-added product could be used as a thickener and to improve texture compared to the flour made from the raw anchote in food formulations.

Keywords: Anchote flour, Drying temperature, Functional properties, Physicochemical properties, Pre-treatment