

International Conference on

Nutritional Science and Food Technology

July 02-03, 2018 Rome, Italy

Production and evaluation of breakfast cereals from blends of acha, mung bean and orange fleshed sweet potato

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Abstract

Ready-to-eat breakfast cereals was produced from acha (*Digitaria exilis*), mung bean (*Vigna radiata*) and orange fleshed sweet potato flours (*Ipomea batatas*). Acha, mung bean and orange fleshed sweet potato were processed into flour. Bulk density and water absorption capacities of the flours were determined. Preliminary studies were carried out to determine the best blend from acha: mung bean flours (100:0, 90:10, 80:20, 70:30, 60:40 and 50:50). Seven samples of flaked breakfast cereal were produced from flour (acha and mung bean) with graded levels of orange fleshed sweet potato flour (90:10, 80:20, 70:30, 60:40, 50:50) with 100 % acha and 100 % mung bean serving as controls. Salt, sugar and water were added and breakfast cereals produced by mixing, steaming, cooling, ageing, flaking and toasting. The samples were analysed for proximate, β -carotene, microbial and sensory properties using standard procedures. The result showed that bulk density of acha, mung bean and orange fleshed sweet potato flours were 0.81, 0.70 and 0.65 g/cm³ respectively and differed significantly ($p < 0.05$) while the water absorption capacity of the flours were 119.70, 155.10 and 264.90 % respectively and also differed significantly ($p < 0.05$). The moisture (5.66 – 9.83 %), protein (8.50 – 18.92 %), ash (2.84 – 6.10 %), fat (0.24 – 2.63 %), fibre (3.81 – 4.84 %) and carbohydrate (62.75 - 75.62 %). The β -carotene content ranged from 0.11 – 3.04 mg/100 g, differed significantly ($p < 0.05$) and increased as the blending level of orange fleshed sweet potato increased in the product. The microbial count indicated that the total viable count ranged from 3.1×10^3 - 6.1×10^3 while no mould growth. The sensory scores revealed that the samples were generally acceptable to the panelists. The blending of acha, mung bean and orange fleshed sweet potato improved the nutritional quality of the resultant flaked breakfast cereals.

Biography

Dr. Ifeoma Elizabeth I. Nwaoha, was born on 5th March, 1971, in Ibadan, Oyo State, she hails from Ndiuhu, Amuzi, Ikenanzizi, Obowo Local Government Area, Imo State. She holds a Bachelor of Science (Microbiology), 1997 and a Master's Degree of Science in Food Science and Technology with bias in Food Quality and Assurance, 2005. She also holds a doctoral degree in Food Microbiology and Biotechnology, 2011, all from University of Nigeria, Nsukka. She is ICT-compliant. She is an academic staff of Department of Food Science and Technology, Faculty of Agriculture, University, Nigeria, Enugu State. University of Nigeria, Nsukka. She possess over thirty-two scientific publications consisting of journals, conference proceedings and chapter in a books.

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