STUDIES ON THE NUTRITIONAL AND SENSORY QUALITY OF BISCUIT SUPPLEMENTED WITH BROWN RICE AND WHITE RICE FLOUR OF SELECTED RICE VARIETIES

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ABSTRACT

Rice is the staple food of Sri Lankans and half of the global population. Sri Lanka is self-sufficient in rice; but there is a major fluctuation of the rice utilization pattern. So it is important if rice can be diversified into other areas. One of the major way is developing of rice biscuits. This study was conducted to analysis the nutritional and sensory qualities of biscuit supplemented with brown and white rice flour of selected rice varieties. This experiment was conducted in the Grain Quality Division, Rice Research and Development Institute, Bathalagoda, Sri Lanka during January to May of 2019.

Rice brain has better nutritional value, therefore, rice biscuits were prepared with five varieties of rice with 1:2 proportion of brown rice and white rice flour. Analysis were conducted with five rice varieties of T_1- Suwandel, T_2- At 309, T_3- Bg 94/1, T_4- At 311 and T_5- MA2. Each variety were tested for their physical and physiochemical characteristics. Each treatments were subjected to organoleptic analysis and more preferred three varieties of biscuits were selected for nutritional and microbial analysis and storage studies. Results of the nutritional and organoleptic qualities were analyzed statistically by ANOVA using SAS statistical analysis package to evaluate the significance at $P < 0.05$.

According to physical quality analysis Suwandel variety has higher percentage of brown rice (80.09%). At 311 variety has higher percentage of head grain (74.73%). By physiochemical analysis of grains, At 311 and Bg 94/1 varieties have high gelatinization temperature. In sensory evaluation rice biscuit with Suwandel variety get most preference on texture (5.38), flavour (5.11), taste (5.45), colour (5.62) and overall

acceptance (5.52) like attributes than other varieties. The results of the proximate analysis revealed that the T_3 treatment with Bg 94/1 variety was richer in fat content (12.28%) and T_1 treatment with Suwandel rice variety was richer in fiber (1.83%), moisture (2.82%) and ash (1.40%) content. T_2 treatment with At 309 variety contained highest amount of protein content (6.28%). Products were not affected by any microbial activities. Process such as roasting and baking at high temperature destroy large number of microorganisms.

Based on all the analysis, biscuit prepared from three verities such as Suwandel, At 309 and Bg 94/1 were given overall nutritional quality and acceptability out of five varieties.

TABLE OF CONTENTS