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Quinoa (*Chenopodium quinoa*) as Potential Neglected Cereal to Combat Malnutrition

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Abstract

Quinoa seeds are not true grains and not considered as fruit so they are considered as pseudo-cereal as well as pseudo oil seeds. The present study was designed to develop quinoa supplemented cookies by using quinoa flour to overcome the threat of malnutrition. For this, Quinoa grains were soaked, drained and then dried in hot air oven at 60° C for 3–4 hours before milling to convert it into quinoa flour. After milling, the flour was sieved through 60 BSS pour size to obtain uniform particle size. The quinoa flour was analysed for nutritional profiling. Afterwards quinoa supplemented cookies were developed by using various levels of quinoa flour. Five different treatments on the basis of quinoa flour concentration (10%,20%, 30%, 40%, 50%) along with control was prepared. The baking of cookies was done at 450 °F (230 °C) for 12 to 15 minutes. Then physico-chemical as well as organoleptic properties of these quinoa supplemented cookies was assessed. Results indicated that the quinoa grains showed high nutritional profile with $14.33\pm0.25\%$ protein, $5.13\pm0.44\%$ fat, 13.33 ± 0.52 % fiber 2.77 ± 0.21 % ash and 54.93 ± 0.33 % NFE. Quinoa supplemented cookies were acceptable by the consumer at 20% level of quinoa. Cookies proximate analysis showed in percentage, from 7.17 ± 0.05 to 9.07 ± 0.01 protein, from 1.19 ± 0.01 to 1.98 ± 0.01 ash, from 18.27 ± 0.20 to 20.98 ± 0.04 fat, from 1.44 ± 0.03 to 3.94 ± 0.03 fiber. Moreover, there was a significant positive change in case on mineral contents of the product. On the basis of these results it was determined that the quinoa supplemented cookies can be prepared with replacement of wheat flour with that of quinoa flour up to 20%. Above this concentration there was negative impact on quality of quinoa specially colour and taste.

Keywords: Cookies, Nutrition, quinoa, Supplementation

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