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Research study to benefit of quinoa, chickpeas and some vegetables in food applications for patients with gluten intolerance and its impact on the characteristics of the final product

Abstract:

Gluten is one of the most abundant components of food particular grains. It is a composite of the proteins gliadin and glutenin. Celiac disease patients must consume food with gluten substitutes or gluten free grains. For this reason, quinoa and chickpea are excellent gluten-free foods, with a high content of vitamins and minerals that make it a potentially essential part of any healthy, gluten-free diet. So this search aimed to a research study to benefit of quinoa, chickpeas and some vegetables in food applications for patients with gluten intolerance and its impact on the characteristics of the final product. Sensory evaluation (taste, colour, smell, texture, appearance structure and overall acceptability) of Quinoa crackers with bill, beet and potatoes showed overall acceptability (4.56±0.2, 4.72±0.1and 4.856±0.02) respectively, but the best results observed in Quinoa crackers with potatoes (4.856±0.02). Chickpea biscuit was showed the best results in sensory evaluation compared with Quinoa products (4.8±0.31, 4.9±0.4, 5±0.004, 5±0.05, 4.7±0.87 and 4.88±0.1) respectively. The results of chemical compostion of Quinoa and chickpea showed high content of protein, Ash, fiber and carbohydrate (12.87 ±1.3, 2.46 ±0.05, 5.11 ±0.44 and 63.57 ±0.61) and (21.49±0.3, 8.0±0.21, 1.51±0.01 and 60.71±0.5) respectively, also, the

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vitamins content of quinoa and chickpea (B1, B6, B12, C and E) are recorded high levels (0.38 ±0.3, 0.18 ±0.12, 0.63 ±0.4, 1.37 ±0.01 and 54.36 ±0.8) and (0.34 ± 0.02, 53.64±2.1, 0.00 , 1.29 ±0.1 and 0.36 ±0.03) respectively. The mineral content (calcium, phosphorus, potassium, magnesium and iron) of quinoa seeds and chickpea were recorded (426.59±0.1, 2728.0±0.8, 3431.98±0.3, 1149.19±0.2 and 24.98±0.08) and (129.67 ±0.11, 218.29 ±0.3, 149.68 ±1.3, 163.29 ±1.72 and 3.96 ±1.6) respectively.

Conclusion:

It can be formed gluten free bakery products with high nutritional value and good quality properties by using Quinoa with some vegetables and chickpea.

Key words:
Quinoa, chickpea, crackers, biscuits, free gluten