

APPLICATION OF RAW BROKEN RICE AND EXTRUDED BROKEN BEAN FLOURS FOR FORMULATION OF GLUTEN-FREE CAKE MIXTURES

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Rice and beans are the staple food for Brazilian population, but their consumption has decreased. With the aim of diversifying the use of their byproducts in food industry, this work determined the physicochemical and microbiological characteristics of the flours of broken rice (FAC) and extruded broken beans (FFE), and evaluated the nutritional and technological quality of their mixtures for preparation of gluten-free cake, as well as the consumer acceptance of the cake. The gluten-free formulations contained FAC, FFE and corn starch in total replacement of wheat flour. The sensory analyses of cakes were performed for taste, flavor, texture and appearance by 60 untrained consumers, applying the nine-point structured hedonic scale. The use of FFE improved the nutritional quality of the mixtures for gluten-free cake because it had high protein ($21.35 \text{ g} \cdot 100\text{g}^{-1}$), insoluble dietary fiber ($15.12 \text{ g} \cdot 100\text{g}^{-1}$), iron ($14.73 \text{ mg } 100\text{g}^{-1}$) and zinc ($2.63 \text{ mg } 100\text{g}^{-1}$) contents, and with the FAC, it makes possible the preparation of cakes with better protein quality (essential amino acid rate over 100%). All cakes were accepted (rate > 7) for all the analyzed attributes, except the 60% FFE cake for texture (6.66). From technological, nutritional and sensory standpoints, the development of gluten-free cake mixtures is feasible with up to 75% of FFE. The FFE and FAC flours can be used in the food industry to replace wheat flour, aiming to raise the nutritional value of the products and to add economic value to the byproducts of the production chains of rice and bean crops.