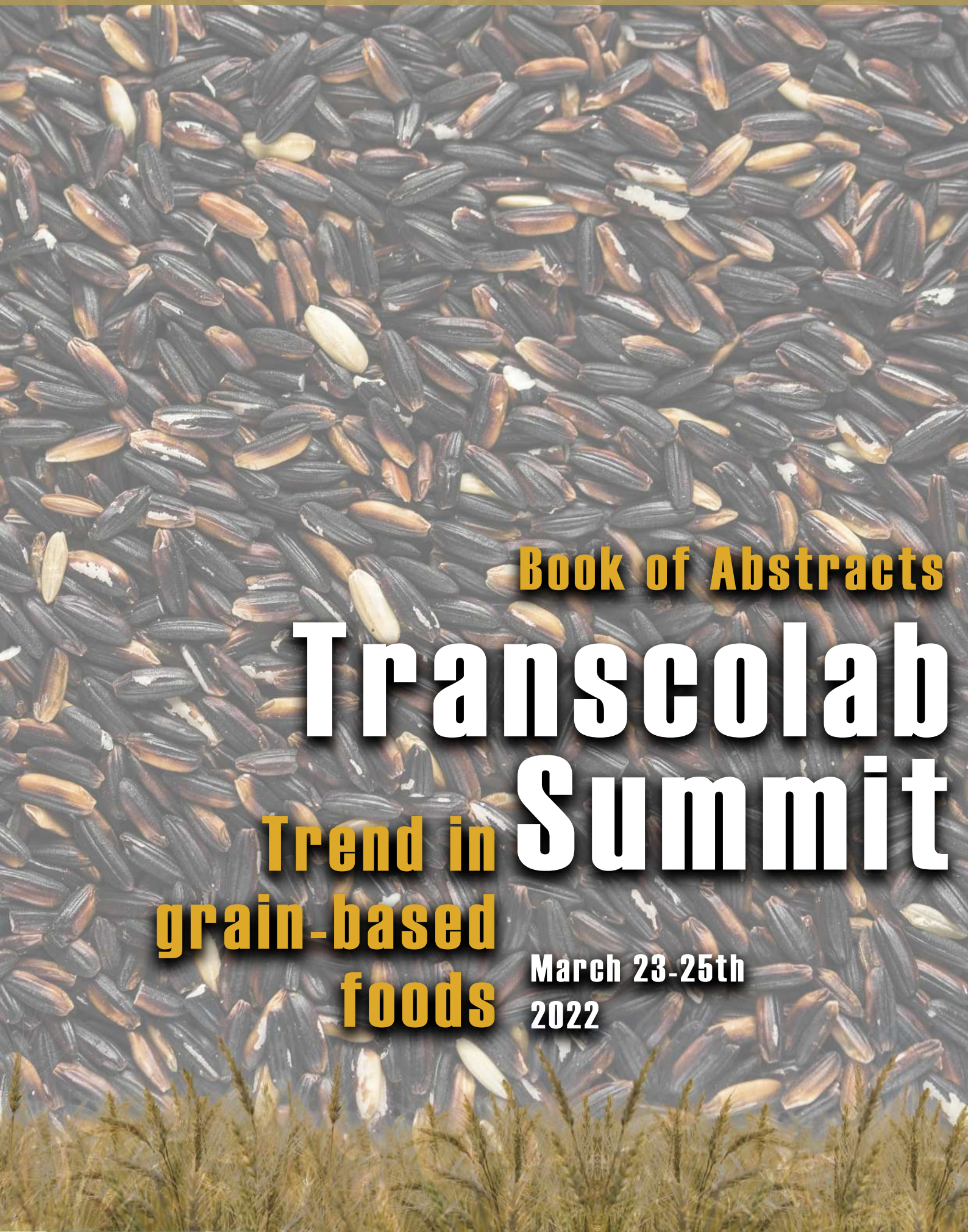

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TRADICIONAL CAKE "ECONÓMICO" WITH CHESTNUT FLOUR – NUTRITIONAL AND CHEMICAL PROPERTIES

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"Económicos" are highly appreciated traditional Portuguese pastry products made with a mixture of cheap ingredients, such as flour, sugar, margarine, olive oil, eggs, and brandy, and consequently it has a low nutritional value [1]. Several studies demonstrated the nutritional power of chestnuts (*Castanea sativa* Mill.), given its richness in carbohydrates, fibers, fatty acids, minerals, and vitamins. A considerable amount of chestnuts cannot be marketed due to their physiological characteristics, being an interesting raw material to explore for other food food bulking [2]. Thus, this work intended to improve the nutritional and physical characteristics of "Económicos" through the incorporation of chestnut flour. Two sample batches were prepared, one containing "Económicos" with 9% of chestnut flour and another one with traditional "Económicos". The centesimal composition, including proteins, crude fat, moisture, ash, fibers, carbohydrates, and energy were performed following the AOAC official methods [3]. The chemical composition, encompassing free sugars, organic acids and fatty acids was evaluated following procedures previously described by Barros et al. [4]. The most abundant nutrient in both batches were the carbohydrates (cake with 9% chestnut flour – 60 ± 2 g/100g fresh weight; traditional cake – 57 ± 2 g/100g fw), followed by crude fat. Although the incorporation of the 9% of chestnut flour did not reveal drastic changes in the nutritional profile of the cakes, a slight but statistically significant increase was verified in carbohydrates as also a decrease in the fats. In both batches, only one sugar, sucrose, and two organic acids, oxalic and fumaric, were identified and quantified, but the batch of "Económicos" with 9% chestnut flour was the one that contained the greatest amount of these compounds (sucrose- 35 ± 1 g/100 g fw; oxalic acid - 0.07±0.01 g/100 g fw; fumaric acid - 0.0021±0.0006 g/100 g fw). Regarding the fatty acids present in the two batches of cakes, fifteen compounds were detected; however only five of these compounds were in a percentage greater than 1%. Thus, the most abundant individual fatty acids were butyric acid (C4:0), followed by oleic and linoleic acids. Overall, the addition of the chestnut flour did not drastically change the appearance of nutritional and chemical profile of the cakes, but it reduced the content in fat, and most importantly, introduced healthier flour from no commercial chestnuts to this inexpensive cake.

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