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O Presidente da República

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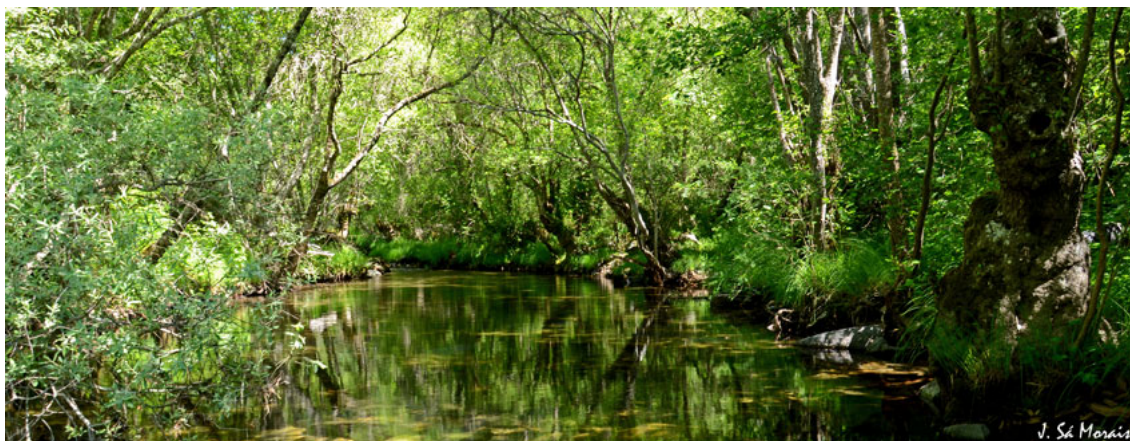
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The impact of extrusion on the organics acids composition of gluten-free snacks based on rice, bean and carob flour blends.

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Due to their nutritional value and chemical profile, legumes, such as beans and carob, have a great potential to be explored leading to the development of novel foods for being included in healthy diets. Organics acids are biomolecules, indispensable for the human body, since they are essential intermediates in cell metabolism. Some of these molecules exhibit antioxidant potential, since they are capable of chelating metals or delocalizing electronic charge from free radicals. Thus, they can be applied in a wide range of industries including food, pharmaceuticals, cosmetics, detergents, polymers and textiles [1]. The aim of this study was to evaluate the changes induced by extrusion processing on organics acids in novel formulations containing different ratios of rice (50-80%), bean (20-40%), and carob (5-10%). The methodology based on Barros *et al.* [2] for organics acids' extraction was applied and the analysis was performed by using ultra-fast-liquid-chromatography coupled to a photodiode array detector (UFLC-PAD). Generally, seven organic acids were identified, namely oxalic, quinic, malic, shikimic, citric, succinic and fumaric acids. However, the composition of these molecules in the studied samples was heterogeneous, being citric acid the major organic acid found in all samples, with the exception of rice and carob where succinic and quinic acids prevailed, respectively. Bean sample was the raw material with the highest organics acids content (3.46 ± 0.01 g/100 g dry weight). On the other hand, commercial extruded rice was the sample that showed the lowest content of total organics acids, presenting trace amounts of all the identified molecules. In general, the higher amount of legume in the non-extruded and extruded samples, the higher concentration of organics acids content detected. In general, the total content of organics acids was not significantly affected by food processing, which is in accordance with other reported works [3]. With this study, it was possible to conclude that the incorporation of legumes may improve the nutritional value of the studied snacks, increasing the levels of organic acids, in comparison with those only made with rice.

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