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O Presidente da República

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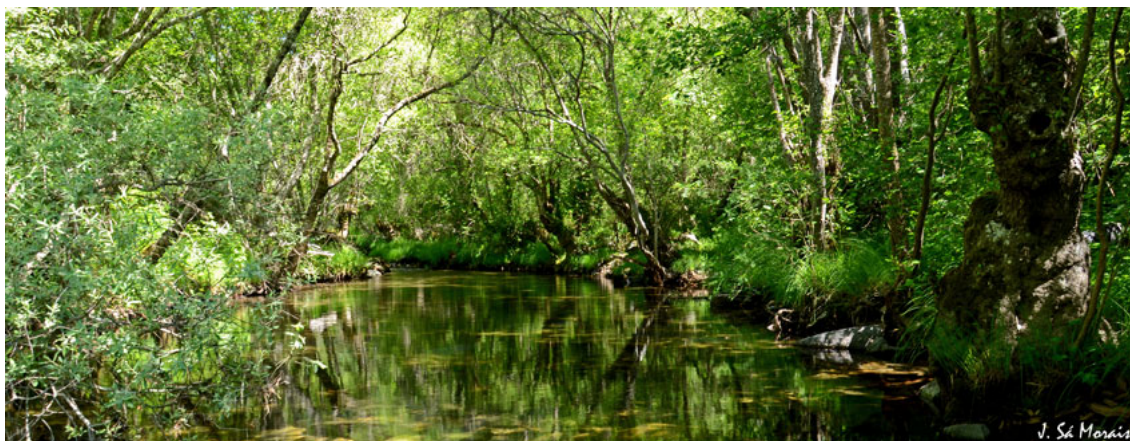
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Analysis of tocopherols and phenolic compounds in extruded lentil flour formulations for development of snack-type functional foods

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Pulses are currently considered as functional gluten-free foods, which could be included in extrusion formulations in order to develop functional products with high nutritional value [1]. In the present study individual phenolic compounds and tocopherols were evaluated in different lentil flours (raw and extruded at 140 and 160°C) formulated with nutritional yeasts. Phenolic compounds were analysed by using a HPLC equipped with a diode-array detector and coupled to a mass detector [2]. For the analysis of tocopherols, it was used HPLC coupled to a fluorescence detector [1].

Extrusion cooking may affect bioavailability of phenolic compounds due to high temperature that causes decomposition of heat-labile phenolic compounds and may also lead to polymerization of some phenolic compounds under high pressure [3]. Catechin hexoside was the most abundant phenolic compound, with values around 30.7 to 66.1 mg/100g dw in raw samples. After the extrusion process, it was observed the highest decrease in the lentil flours formulated with the highest amount of nutritional yeast (16%). The other phenolic compounds, also experiment a decrease but in a less extend, probably due to partial hydrolysis of conjugated phenolics[4]. Particularly in the case of kaempferol-*O*-desoxyhexide-*O*-hexoside-*O*-rutinoside, quercetin-3-*O*-glucoside, quercetin-*O*-hexoside and quercetin-*O*-pentoside.

Regarding tocopherols content, there was a significant decrease in all tocopherol vitamers after the extrusion process. In the studied raw samples, total tocopherols content ranged from 2.05 to 3.02 mg/100g (dw). The results showed a reduction of 81.5-92% in total tocopherols, which is in accordance with other authors [3].

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