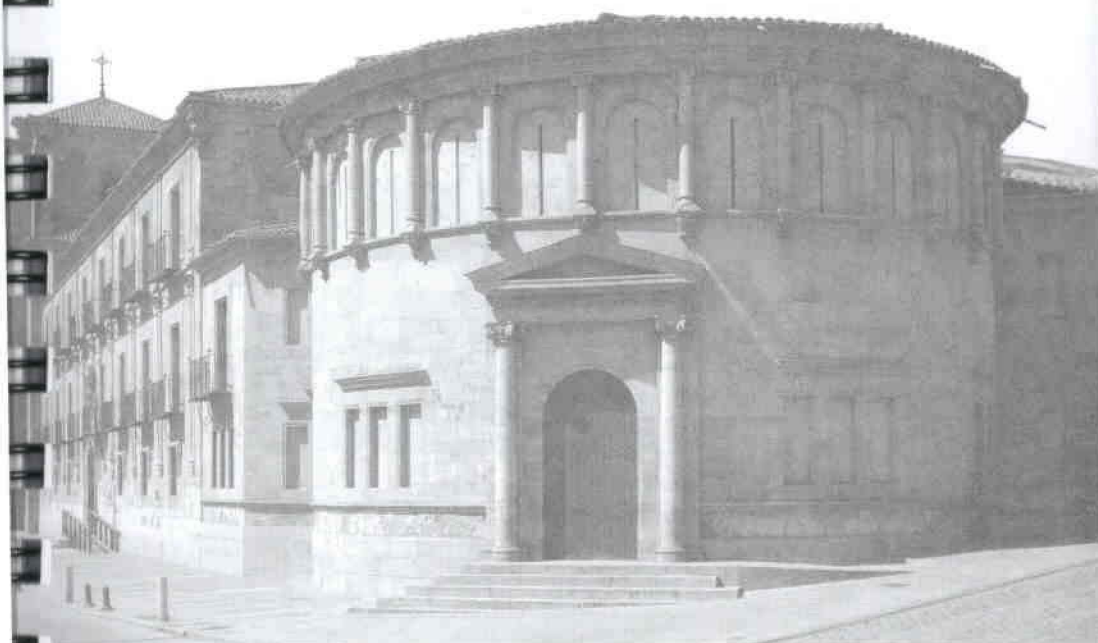




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ANTIOXIDANT PROFILES OF SOYBEAN OIL OBTAINED FROM GENETICALLY MODIFIED SEEDS

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Soybean oil is a rich source of phytosterols and vitamin E, which are important antioxidants that occur naturally in vegetable oils. These compounds are known for their ability to reduce blood cholesterol and to be involved in diverse physiological and biochemical functions [1-2]. Moreover, they are considered of technological importance since they can improve the oxidative stability of oils. Nowadays, soybean oil represents almost 30% of the world's vegetable oil consumption, with a considerable contribution arising from genetically modified (GM) oilseeds, which in 2009 corresponded to 52% of the total biotechnological planted area [3].

The aim of this work was to study the compositional evolution during extraction and refining industrial processes of soybean oil obtained from GM seeds. Sampling included the extraction (whole, cracked, laminated and extruded seeds, and crude oil) and the refining steps (neutralised, washed, bleached and deodorised oil). Fatty acid and phytosterol compositions were evaluated by GC/FID and vitamin E profile was determined by HPLC/DAD/FL.

Fatty acid composition did not change significantly along the refining process with the exception of the *trans* isomers content, which increased from 0.1% to 0.7% during the deodorisation step. Refining caused a 20% loss of total phytosterols (from 393 to 314 mg/100g), mainly after neutralisation and washing, and a 30% reduction of tocopherols (from 1344 to 942 mg/kg). The main tocopherols were g- and d- isomers while no tocotrienols were detected [4]. In general, those losses were lower than the reported in other studies, reflecting the industrial improvements in preserving beneficial health compounds in the refined oil.

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