Comparative study of fatty materials used in the preparation of bakery products

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The fatty materials usually used in the preparation of bakery products are generally of two types: animal fats and hydrogenated vegetable oils. These fat materials must have a hardness suitable for this purpose, therefore often hydrogenated fats are often used. It is known that hydrogenation process introduces a certain quantity *trans* fatty acids (TFA) that are produced during the industrial partial hydrogenation of vegetable oils, which are also known to have adverse effects on human health. However, there are some TFA, such as conjugated linoleic acid (CLA) and *trans*-vaccenic acid (TVA) that, on the contrary, have been reported to have beneficial properties on human health. These fatty acids are commonly found in ruminants fat and milk fat, as a result of the biohydrogenation process. In Uruguay, both have an unusual high content of CLA and TVA, presumably due to the feeding system on natural pastures

In this work the fats extracted from some Uruguayan popular bakery products called "galletas" and "bizcochos" were analyzed and their physicochemical properties studied. Results showed an average fat content of 17% for the "galleta" and 31.5% for the "bizcochos". The maximum value of total TFA found in these products was 17.3%, however the majority of them did not exceed a level of 7%. The final melting temperature for "bizcochos" was between 40 ℃ and 4 8 ℃ while for "galletas" was from 12 ℃ to 50 ℃. In turn, these results are contrast ed with the composition of the samples in triacylglycerols.

The study of thermal behavior combined with the triacylglycerols composition provides valuable information about the fatty materials employed in the elaboration of the products and its hardness.