P 139

THE FORMATION OF TRANS FATTY ACIDS IN FLAXSEED DURING HEAT TREATMENT

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The use of flaxseed oil for edible purposes, particularly as cooking oil, has been limited because of its instability, but it can be used as salad oil. On the other hand, nowadays, various flaxseed fractions are used as a functional ingredient in food products and generally, heat treatment is used during production of these foods as bakery products. Especially dry heating process such as roasting, baking and extrusion have important effects on lipid quality of oilseeds. In this study, formation of trans fatty acids (trans oleic, trans linoleic, trans α-linolenic) in whole flaxseed, flaxseed flour and flaxseed meal flour during roasting process at 180℃ for 5, 10 and 15 min in a conventional oven. The level of trans fatty acids in unroasted and roasted products were analyzed. Trans α-linolenic acids were higher than others and the highest level of total trans fatty acids (0.43 and 0.50%) were observed in unroasted flaxseed meal flour and roasted flaxseed flour for 15 min at 180℃ respectively. Also, the same level of total trans fatty acids were determined as 0.30% in roasted whole flaxseeds for 5 and 10 min. Although the level of trans fatty acids detected in this study were relatively low, total daily intake of trans fatty acids is very important for human health. Whole flaxseeds can be used as functional ingredient in foods, especially bakery products, because of the low trans fatty acids.

Keywords: Flaxseed, trans fatty acids, roasting

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