

THE EFFECT OF HEAT TREATMENT ON THE LEVEL OF α -LINOLENIC ACID IN FLAXSEED

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Flaxseed oil contain the highest level of α -linolenic acid, has three double bonds, in comparison with other vegetable oils and α -linolenic acid is mostly affected by oxidation because autoxidation reaction rate increases with the number of double bonds present in a fatty acid. In this study, it was aimed to investigate the effect of heating process on the level of α -linolenic acid in flaxseed. For this aim, whole flaxseed, flaxseed flour and flaxseed meal flour were roasted at 180°C for 5, 10 and 15 min in a conventional oven. During heat treatment, α -linolenic acid reduced 3.80% in 15 min roasted flaxseed flour whereas, the level of α -linolenic acid increased 3.66% in flaxseed meal flour roasted at 180°C for 5 min. It could be explained with reduction of unsaturated fatty acids, which has four or more double bonds in flaxseed meal flour. Besides, as roasting time increased from 5 to 10 min, α -linolenic acid decreased 3.66% in flaxseed meal flour and also a noticeable decrease (28.37%) was found as compared to unroasted flaxseed meal flour for 15 min. The roasting process and roasting time noticeably affected the level of α -linolenic acids in flaxseeds. The effect of roasting on α -linolenic acids depended on the flaxseed fractions. Whole flaxseed was found more resistance to heat treatment than flaxseed flour whereas; noticeable changes were obtained for roasted flaxseed meal flour.

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