

عنوان مقاله:

Effect of cooking time and temperature on vitamin D₃ amount in the fortified sunflower oil

محل انتشار:

فصلنامه پیشرفت در استانداردها و علوم کاربردی، دوره 1، شماره 3 (سال: 1402)

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خلاصه مقاله:

According to WHO report, more than ۲ billion people in the world suffer from micronutrient deficiencies caused largely by a dietary deficiency of vitamins and minerals. Fortification of some staple foods is one of the simplest and most practical methods to combat micronutrient deficiencies for both poor and wealthy societies. In this study sunflower oil was fortified with different concentrations (۰.۱, ۰.۳, ۰.۹, ۱ and ۱۰ µg/mL) of vitamin D₃. Then the reduction of vitamin D₃ for concentrations of ۰.۱ and ۰.۹ µg/mL at different times (۰, ۲, ۴, and ۶h) and cooking temperatures (۷۰, ۱۱۰, and ۱۵۰°C) and also at deep-fat frying temperature of ۱۸۰°C, concentrations of ۱ and ۱۰ µg/mL were investigated. The results showed that the relative resistance of this vitamin observed at ۷۰ °C. Over the specified time, at ۱۱۰, and ۱۵۰ °C, the amounts of vitamin D₃ were decreased significantly. At ۱۸۰ °C (deep frying), more than ۶۰% of vitamin D₃ was decomposed. Also, after heating, pyro- and iso-pyrociferol were detected as vitamin D₃ decomposition compounds at deep-fat frying temperature using GC-MS. Based on the obtained results, free- vitamin D₃ added to cooking oil can be stable at temperature lower than ۱۰۰°C but for higher temperature, encapsulation of it is proposed

کلمات کلیدی:

Oil, Fortification, Pyrocoleciferol, Isopyrocoleciferol

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