





## Enrichment of cheese with vitamin D<sub>3</sub> and vegetable omega-3

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### Abstract

Encapsulation technology provides many benefits to the food fortification: protection from oxygen and light, a best dispersion and biodisponibility, etc. In this study, vitamin D<sub>3</sub> was encapsulated in two flaxseed oil emulsion formulations. Emulsions were stabilised with calcium caseinate in presence or absence of lecithin and used to standardise cheese milk. The use of flaxseed oil rich in alpha-linolenic acid allows fortifying the cheese in omega-3 and other polyunsaturated fatty acids (PUFA). Cheese yield and retention rate of proteins, fats and bioactive component were determined. Quantification of vitamin D<sub>3</sub> and chemical stability of cheeses were performed up to 90 days of storage at 4 °C. Recovery level of vitamin D<sub>3</sub> in cheese was, respectively, 91 and 84% in the presence or absence of lecithin. The encapsulation of vitamin D<sub>3</sub> in the cheese in the form of emulsified particles of oil containing lecithin increased retention and stability of the vitamin in the curd. The fortification of cheese with vitamin D<sub>3</sub> and PUFA had a positive impact on the composition, yield and chemical stability of the resultant cheese.

### Keywords

Vitamin D<sub>3</sub>; Flaxseed oil; Cheese; Recovery level; Chemical stability