DIATOMS: AN ALTERNATIVE SOURCE OF OMEGA 3 FATTY ACIDS?

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Numerous epidemiological, animal and clinical studies have shown that the long chain omega 3 polyunsaturated fatty acids (LC-PUFA) EPA and DHA are effective in preventing or treating several diseases, such as cardiovascular disorders and cancers, and that they play a role in brain and nerve development of growing foetuses and infants. However, in many Western countries, the current average intake of these LC-PUFA is below the recommended level. This raises interest in food supplements containing LC-PUFA on the one hand and foodstuffs enriched with LC-PUFA on the other hand. Currently, the main commercial source of LC-PUFA is fish oil. However, several problems are associated with this oil: unpleasant odor, contamination with heavy metals, presence of cholesterol, geographical and seasonal variation in quality, as well as increasingly stringent regulation of fisheries. The aim of this research is to investigate the possibilities of diatoms as an alternative source of these LC-PUFA. The composition of the algal oil (from *Phaeodactylum* and *Thalassiosira*) in comparison with already commercially available sources and oil from other microalgal species (e.g. *Nannochloropsis*) will be discussed. Attention will be paid to the form in which the LC-PUFA are present and the presence of other nutritionally interesting compounds in the oil such as phytosterols and carotenoids.