

Investigation of the Hydrolysis Characteristics for Increasing of ω -3 PuFAs from Fish Oil by Lipolase-100T

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ω -3 PuFAs(Polyunsaturated fatty acids) such as EPA(eicosapentaenoic acid) and DHA(decosaheptaenoic acid) are essential component of cell membranes particularly found in the retina and central nervous system. In human, ω -3 PuFAs are not produced and thus, must be obtained from dietary sources. The major dietary sources of DHA are oils from marine fish and microalgae. In this study, the hydrolysis characteristics of various fatty acids composing the fish oil was investigated using Lipolase-100T. Lipolase-100T showed 1,3-positional specificity which hydrolyzed ester bonds combined on the 1 or 3 position of triglyceride into free fatty acids. Lipolase-100T represented another property that the saturated fatty acids composing the triglyceride were hydrolyzed more easily than the polyunsaturated fatty acids(PuFAs). We achieved that the concentration of those in the mixture of glycerides were increased according to hydrolysis time.

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Reference

1. Sufihara A., Y. Shimada, N. Takada, T. Nagao, and Y. Tominaga, *Penicillium abeanum* Lipase: Purification, Characterization, and Its Use for Docosaheptaenoic Acid Enrichment of Tuna Oil(1996), *J. Fert. Bioeng.*, 82(5), 498-501.
2. Shimada, Y., K. Maruyama, S. Okazaki, M. Nakamura, A. Sugihara, and Y. Tominaga, Enrichment of Polyunsaturated Fatty Acids with *Ceotrichum candidum* Lipase(1994), *J. Am. Oil. Chem. Soc.*, 71, 951-954.