

# RESPONSE SURFACE METHODOLOGY: AN EFFECTIVE TOOL FOR THE OPTIMIZATION OF THE EXTRACTION OF VITAMIN E FROM PALM FATTY ACID DISTILLATE BY ENZYMATIC HYDROLYSIS

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## Abstract

Response surface methodology was applied as a valuable tool for the optimization of the extraction of tocopherols from palm fatty acid distillate. The extraction procedure and experimental set-up improved the yield of total tocopherol from an initial value of 0.39% to 4.67%. It was found that extraction by enzymatic hydrolysis followed by neutralization increased the yield of total tocopherol from palm fatty acid distillate. In the optimisation approach, the central composite design was employed as a means of experimental set-up, as analysis of variance and several correlation functions were statistical tools applied in the optimisation of process conditions of enzymatic hydrolysis of palm fatty acid distillate. Water weight of 60.604 % (v/w), lipase weight of 7.130 % (w/w) and reaction time of 2.713 hrs gave the best (at optimized state) experimental protocol for the enzymatic hydrolysis PFAD in terms of yield of total tocopherol (as vitamin E) with a desirability of unity.

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