

# Validation of the rancimat test for the assessment of the relative stability of fish oils

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The induction periods for the peroxidation of various fish oils at 55-90°C were studied by the Rancimat test. The natural logarithms of the induction periods varied linearly with respect to temperature, with a mean coefficient of  $-7.5 \times 10^{-2} \text{ } ^\circ\text{C}^{-1}$ , which was significantly different from that reported for vegetable oils. The activation energy for the formation of volatile acids had a mean value of 38.9 kJ/mol and was independent of the fish oil source. Peroxide formation under Rancimat test conditions followed first-order kinetics. The same kinetics were followed under Schaal Oven test conditions (forced-air oven, 60°C). On the basis of the results obtained, the Rancimat test appears to be useful in determining the relative stabilities of fish oils without the change in peroxide decomposition kinetics that may occur at elevated temperatures.