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Purification and Partial Characterisation of an Acid Lipase in Germinating Lipidbody Linseedlings

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Abstract: Electrophoretic analysis of germinating linseed proteins showed a gradual decrease in the quantity of a protein with a molecular weight of 42 kDa. This protein accumulates after 36 h of germination in synchronisation with an increase in lipase activity, and a decrease in the quantity of the total lipids. The 42 kDa subunit was found to be a lipid body membrane protein. This protein was isolated and identified by immunoprecipitation as a subunit of lipase. The linseed lipase acted on a wide range of triacylglycerols and had optimal activity at pH 4.7. The activity of the enzyme was slightly affected by a high concentration of salts and EDTA, while high concentrations of non-ionic detergents exhibited a pronounced inhibitory effect. These data suggest that the isolated 42 kDa protein is most likely a linseed acid lipase responsible for the breakdown of lipids during germination.

Key Words: Acid lipase, Triton X-100-solubilised lipid body membrane protein (XLBP), ether-extracted lipid body membrane protein (ELBP)

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