

Substrate specificity of Lipases from Germinating Seeds of *Simmondsia chinensis*, *Camelina sativa* and *Crambe abyssinica*

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Jojoba (*Simmondsia chinensis* Link, *Buxaceae*) is a perennial shrub that grows naturally in the deserts of Arizona and western Mexico. It is the only plant which accumulates wax esters in the seeds. These esters have numerous industrial applications, e.g. can be used as compounds of lubricants or cosmetics. Both *Camelina sativa* and *Crambe abyssinica* were successfully transformed with jojoba genes responsible for wax esters synthesis. Thus, these are potential oilseed crops with wax esters as storage materials. It is important to check whether these plants mobilize wax esters during seed germination. A key enzymes in storage lipids mobilisation are lipases. Therefore, the aim of presented study was to determine substrate specificity of lipases from germinating seeds of tested species.

Jojoba seeds were germinated in growth chamber at 28°C with 16-hours photoperiod. *Camelina sativa* and *Crambe abyssinica* seeds were germinated at 25°C in darkness. The seeds of all three species were collected at various stages of germination. Microsomal fractions for *in vitro* assays was prepared from the cotyledons. Radiolabelled substrates: triacylglycerols, diacylglycerols, monoacylglycerols, wax esters and polar lipids were implemented to the assays and the reaction products were visualised and quantified by electronic autoradiography.

At very early stages of germination the lipase activity of investigated seeds towards tested substrate (tri-[¹⁴C]18:1-TAG & [¹⁴C]18:1-18:1 wax ester) was very low. However it increased considerably during the germination. For substrate specificity experiments microsomal fractions with the highest lipase activity were used. It appears that TAG's, DAG's and MAG's are preferable substrates. Wax esters were also hydrolysed by lipases from all three tested species, but with slightly lower intensity. No activity against polar lipids was detected.

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