Purification and properties of fatty acid esterases from yam (Dioscorea batatas Decne) tuber

侯文琪

Hou;W. C.;Chen. H. J.;Chang. C. F. and Lin;Y. H.

Abstract

ng β-naphthyl myristate (C14 fatty acid ester) as a screening substrate, fatty acid esterases (FAEs) were purified from D. batatas tubers. Two FAE fractions (named FAE I and FAE II) were obtained after DE-52 ion exchange chromatography and Sephadex G-75 gel filtration purification steps, and then further purified by Con A Sepharose 4B affinity chromatography. The FAE I and II fractions contained the same 3 protein bands of about 50-64 kDa, corresponding to esterase activity bands on SDS-PAGE gels. Among β-naphthyl esters determined at pH 4.0, 5.0 and 6.0 the best substrate for both FAE fractions was a C10-containing one with a maximum pH at 5.0. The Km and Vmax for β-naphthyl caprate (C10 fatty acid ester) of FAE I and II at 37°C and pH 5.0 were 0.338 and 0.959 mM and 0.405 and 0.585 nmole β-naphthol/min μg protein, respectively. FAE activity was stable below 50°C and lost completely above 65°C.