

Digestive Lipase from *Tityus serrulatus*.

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Lipase (EC 3.1.1.3) hydrolyze triacylglycerols releasing fatty acids. Different Arthropoda species presented lipase activity. *Tityus serrulatus* presented high activities of lipase in hepatopancreas homogenate samples using 2,3-dimercapto-1-propanol tributirato (DMPTB) and 4 methylumbelliferyl oleate (MUO) as substrates, probably involved in the digestion of triacylglycerol present in their preys. The aims of this work were isolate the digestive lipase from *Tityus serrulatus* hepatopancreas to homogeneity and characterize the purified enzyme. Hepatopancreas from *Tityus serrulatus* females were isolated and homogenized in Milli Q water in a Potter-Elvehjem homogenizer. Lipase activity was measured using p-nitrophenolpalmitate, p-nitrophenolacetate, MUO and DMPTB as substrates. *Tityus serrulatus* presents two lipase activities with molecular masses of 53.7 kDa (major activity), 117.5 kDa, a pH optimum of 8.0 – 8.5, pIs of 5.7 and 6.0. These activities were not affected by Ca⁺². Lipase activity from *Tityus serrulatus* is stable in a pH range from 3.5 to 9.5 at 37°C. Lipase inactivates at 45°C according to an apparent first-order kinetics for more than three half-lives, with a *t*_{1/2} of 10 min. The chromatography on Hitrap S column separates two activities on DMPTB (recovery 70%). One activity (Lip1) didn't interact with this column in the conditions used. The other activity is eluted with 0.12 M NaCl (Lip2). Lip2 was applied to a Resource S column (recovery 80%). These enzymes presented different specificities. Lip 1 hydrolyzed DMPTB and p-nitrophenol palmitate. Lip2 hydrolyzed p-nitrophenolacetate and DMPTB. Lip2 was purified to homogeneity as demonstrated by a 12% polyacrylamide gel electrophoresis. Lip 2 presented a Km of 0.09 ± 0.008 mM using DMPTB as substrate. These enzymes present a molecular mass similar to *Scorpio maurus* lipase and an alkaline activity as other lipases. **Supported by FAPESP and CNPq/ PIBIC.**