

DISTRIBUTION AND PARTIAL CHARACTERIZATION OF TWO α -MANNOSIDASES OF *TENEBRIO MOLITOR* (COLEOPTERA)

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Digestive enzymes are potential targets in developing new insect control procedures. Thus, we are carrying on a systematic study of these enzymes in model insects. As insect α -mannosidases are relatively unknown, this prompted us to study this enzyme in *T. molitor* larvae. α -Mannosidase is a glycoside hydrolase that may digest the glycoside chains of glycoproteins. α -Mannosidase activity in *T. molitor* larvae is more active in the anterior and middle midgut luminal contents (60.3 % of total activity) with a significant activity in the membrane fraction of the anterior and middle epithelium (11.8 % of the total activity). Using a differential calcium precipitation technique we isolated microvilli from midgut tissue of *T. molitor* larvae with aminopeptidase as a marker enzyme. The microvillar α -mannosidase activity was enriched 6-fold in the anterior and 3-fold in the posterior midgut. The optimum pH of luminal and tissue α -mannosidase are 5.64 and 6.1, respectively. The possibility that the luminal α -mannosidase activity came from larval food (wheat bran) was discounted because bran activity is low as compared with midgut contents activity. Putative partial sequence of these two α -mannosidase, were obtained: the microvillar enzyme by immunoscreening of expression midgut cDNA libraries with antibodies against microvillar proteins (Ferreira *et. al*, 2006) and the luminal by random sequencing a cDNA library of *T. molitor* midgut.

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