β-1,3-glucanases are enzymes that efficiently hydrolyze β-1,3-glucans as laminarin (from *Laminaria* spp.), pachyman (from *Poria cocos*) or yeast cell wall β-glucan. They are classified into three enzyme classes, according to their specificity and pattern of action as: E.C.3.2.1.6, endo-1,3(4)-β-glucanase; E.C.3.2.1.39, glucan-endo-1,3-β-D-glucosidase, and E.C.3.2.1.58, glucan 1,3-β-glucosidase. Laminarinases (β-1,3-glucanases that hydrolyze laminarin) had been described as abundant in the digestive tract of insects of the orders Collembola, Trichoptera, Dictyoptera, Orthoptera, Isoptera, Coleoptera and Diptera. In spite of that, those insect digestive enzymes are poorly known. Insect digestive laminarinases putatively play a role in hemicellulose (callose or cereal β-1,3-1,4-glucans) digestion in herbivores or in the digestion of β-1,3-1,6-glucans from fungi in detritivores. We purified and characterized the digestive laminarinases from *Periplaneta americana* (Dictyoptera), *Abracris flavolineata* (Orthoptera) and *Tenebrio molitor* (Coleoptera). The properties of these enzymes suggest specialized roles for them, as digestion of cereal hemicellulose (*P. americana*), digestion of plant callose (*A. flavolineata*) or digestion of fungal cell wall (*T. molitor*). We showed that gut laminarinases are secreted by salivary glands in *P. americana* and midgut cells in *T. molitor*. Chitinolytic enzymes are enzymes that act on chitin, the β-1,4-homopolymer of N-acetylglucosamine. We purified and characterized the *T. molitor* larval midgut chitinase and cloned its corresponding cDNA. Some characteristics of this enzyme, like its oligochitosaccharidase activity and the lack of a Chitin Binding Domain, are probably related to the adaptation of this chitinase to digest chitin structures in food without damaging the peritrophic membrane.