

Comparative Study on Characteristics of Lysozymes from the Hemolymph of Three Lepidopteran Larvae, *Galleria mellonella*, *Bombyx mori*, *Agrius convolvuli*

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Lysozymes were purified from the hemolymph of three immunized Lepidopteran larvae, *Galleria mellonella*, *Bombyx mori*, *Agrius convolvuli* to compare their physico-chemical properties and antibacterial activities with those of chicken lysozyme. Four lysozymes including the one from chicken had a similar molecular masses and chromatographic behavior on RP-HPLC. Western blotting analysis using an antibody raised against *G. mellonella* revealed that lysozyme cross-reacted with two other insect lysozymes but not with commercial chicken lysozyme. Antibacterial activities of lysozymes were measured in two types of tests: radial diffusion assay and colony count assay. Our antibacterial tests revealed that all lysozymes have strong activities against Gram-positive bacteria and three insect lysozymes still retain a little potency against Gram-negative bacteria, while chicken lysozyme has no activity against Gram-negative bacteria. Taken together, we conclude three Lepidopteran lysozymes have a common distinct structure and have an antibacterial activity, which is absent in chicken lysozyme, against Gram-negative bacteria.