

Morphometrics and enzyme activities in the femoral muscles of variegated grasshopper *Zonocerus variegatus* (Orthoptera: Pyrgomorphidae) during post-embryonic development

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Abstract

The measurements of the hind femur and activities of five enzymes (α -glucosidase, amylase, cellulase, proteinase and lipase) were determined in the femoral muscles of all post-embryonic developmental stages of *Zonocerus variegatus* (Linnaeus). The length, width and weight of the hind femur increased during the post-embryonic developmental stages. The enzymatic activities in the femoral muscles of the adult stage were significantly ($P < 0.05$) higher than the lower instar stages. Proteinase and lipase activities were higher than the carbohydrases (α -glucosidase, amylase and cellulase), reflecting the nature and composition of the food plants consumed.