

# Triacylglycerol Lipase in Solitary and Gregarious Phases of *Schistocerca gregaria* (Forsk.) (Orthoptera: Acrididae)

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## Abstract:

The activities of the fat body triacylglycerol lipase were determined using  $^{14}\text{C}$ -trioleoylglycerol. Resting activities were estimated at  $1.98 \pm 0.24$  and  $1.95 \pm 0.53$  nmol free fatty acid (FFA)/hr/mg protein for gregarious and solitary locusts, respectively. Administration of adipokinetic hormone (AKH) I led to the activation of lipase with peak activities occurring after 30 min. In the solitary locusts, activities of  $2.28 \pm 0.16$  and  $2.30 \pm 0.43$  nmol FFA/hr/mg were obtained following administration of 10 and 2 pmol AKH I, respectively. In the gregarious locusts, enzyme activities of  $3.17 \pm 0.66$  and  $2.47 \pm 0.39$  nmol FFA/hr/mg were obtained after administration of 10 and 2 pmol AKH I, respectively. The  $K_m$  values were estimated at 46.67 and 18.75  $\mu\text{M}$  for gregarious and solitary locusts, respectively. Similarly, the  $V_{max}$  values were estimated at 10.29 and 2.52 nmol/hr/mg for gregarious and solitary locusts, respectively. These results confirm phase-dependent differences in lipase properties with the gregarious form having a higher catalytic ability, but a lower affinity for the substrate than the solitary type.