

Plasticity and genotype × environment interactions for locomotion in *Drosophila melanogaster* larvae

Del Pino, Francisco

Salgado, Erika

Godoy-Herrera, Raúl

Locomotion is a primary means by which animals interact with the world. To understand the contribution of genotype × environment interactions to individual differences in *D. melanogaster* larval locomotion we investigated phenotypic sensitivity to environmental changes in four strains of this species and their F₁ hybrids. We also investigated to what extent flexibility and plasticity of locomotion depend upon larval age. Specifically, we examined larval locomotion at 48 and 96 h of development on three different substrates. Locomotion was influenced by the structure of the substrate, but this depended on both the genotype and larval age. At 48 h of larval development phenotypic variation in locomotion was attributable to both genotype × environment interactions and genotypic differences among the larvae, while at 96 h of age, differences were mainly due to genotype × environment interactions. An analysis of variance of the 4 × 4 diallel cross made at 48 and 96 h of development showed,