Met, a mutation involved in juvenile hormone action, does not prevent changes in the hormone metabolism of *Drosophila* under stress.

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As evidenced by the large body of data in the literature, the juvenile hormone (JH) is important in the stress reaction of insects. It has been shown that stress results in an increase in the level of JH as a result of both an elevation of its synthesis and a lowering of its degradation (see reviews: Rauschenbach, 1991; Cymborowski, 1991). We have previously demonstrated that in females of *Drosophila* (*D. virilis* and *D. melanogaster*) the level of JH-hydrolyzing activity sharply falls after the effect of a stressor (Rauschenbach *et al.*, 1995). We ask here whether a mutation impairing the action of JH will affect hormone metabolism in flies that are placed under stress. Here we present the results of studies showing the response of JH metabolism to stress in three strains of *D. melanogaster*. Strain *v Met*27 is a null allele of the *Methoprene-tolerant* gene that shows resistance to the toxic effects of the JH analog, methoprene (Wilson and Fabian, 1986; Wilson and Ashok, 1998). Both the *vermilion* (*v*) strain from which the *v Met*27 strain was derived and laboratory balancer strain First Multiple Seven (FM7) are sensitive to the effect of methoprene.

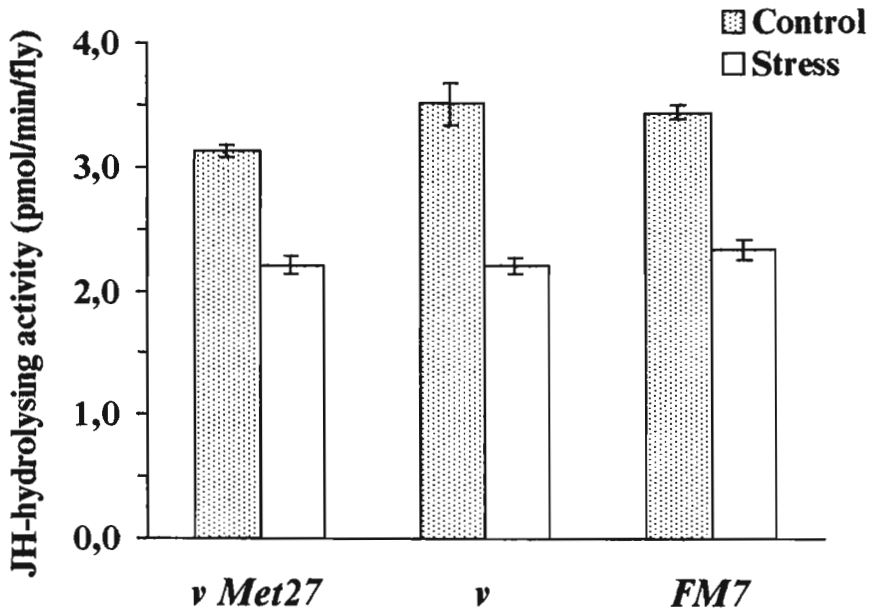

Figure 1. Level of JH-hydrolyzing activity in 24 h old females of strains *v Met*27, *v*, and FM7 under normal and stress (38°C, 2 h) conditions.

Cultures were raised on standard medium at 25°C, and adults were synchronized by eclosion. Adults (24 h old) were subjected to stress by placing them at 38°C for 2 h. Thereafter, they were frozen in liquid nitrogen and stored at -20°C. JH-hydrolyzing activity was measured according to Hammock and Sparks (1977).

The results of measurements of JH hydrolysis levels in females of strains *v Met*27, *v* and FM7 demonstrated that exposure to stress evoked in females of all three strains a significant ($P < 0.001$) decrease in JH-hydrolyzing activity compared to control females kept at 25°C (Figure 1). However, the *Met* flies showed a response that did not differ from the two Met^+ strains.

We have demonstrated that JH degradation in *v Met*27 females responds to a stressful agent by a sharp reduction in JH-hydrolyzing activity. It may be concluded that any impairment of JH action in this strain does not result in any perturbance in the hormonal stress reaction we studied.

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M.L. Filipenko 1995, J. Insect Physiol. 41: 179-189; Wilson, T.G., and M. Ashok 1998, Proc. Natl. Acad. Sci. USA 95: 14040-14044; Wilson, T.G., and J. Fabian 1986, Dev. Biol. 118: 190-201.

Variation in abdominal pigmentation pattern of *Drosophila immigrans* from Kumaun, India.

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Since the discovery of Sturtevant (1919) that *Drosophila melanogaster* has a closely resembling sibling species *Drosophila simulans*, both species are cosmopolitan and coexistent (Lachaise, *et al.*, 1988). The two species are mainly distinguished by checking the male offspring of isofemale lines because of different genital arches (Coyne, 1983; Shorrocks, 1972). Based on measurements of eye sizes of *D. melanogaster* and *D. simulans*, it is possible to make a distinction between the females (Burla, 1951; Gallo, 1973; McNamee and Dytham, 1993), but it is a painstaking job where large numbers of flies have to be examined. A high number of misqualifications have been reported, based on eye size definitions. Based on a paper by Eisses and Santos (1997), we decided to examine the abdominal pigmentation pattern of *D. immigrans* Sturtevant which is a very common species found in this region.

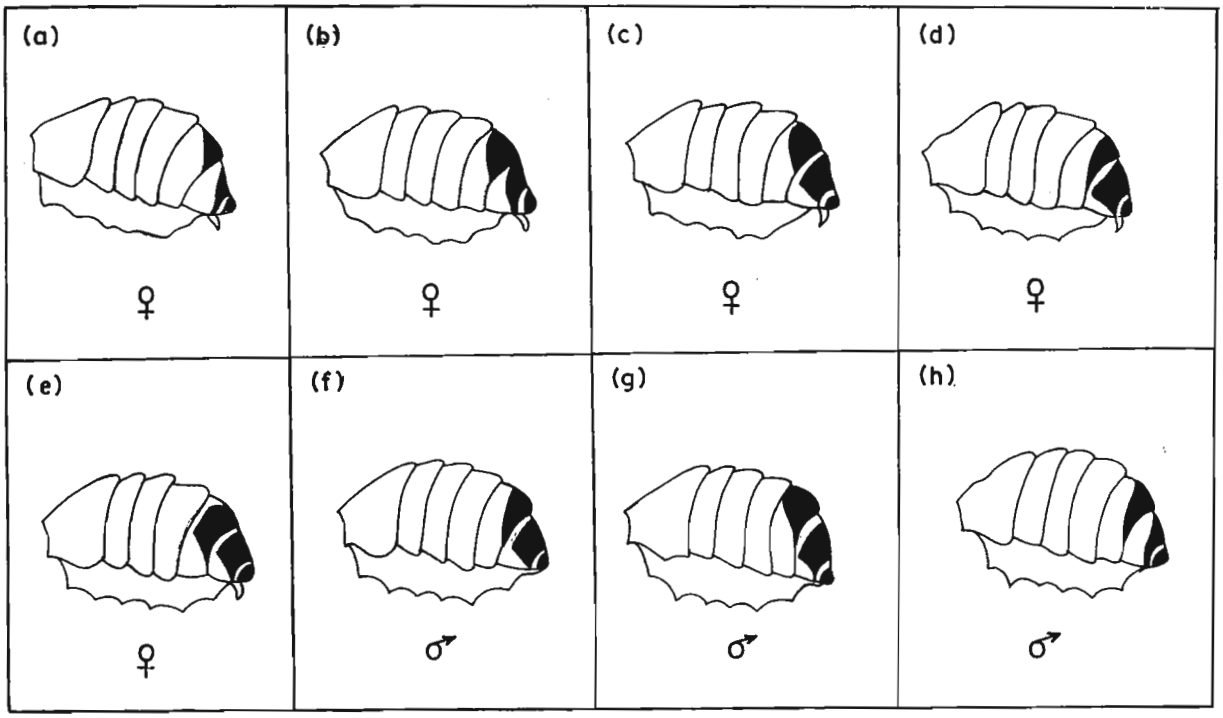

Figure 1. Pigmentation pattern of the 5th, 6th, and 7th tergites of *D. immigrans* Sturtevant. (a-e) females and (f-h) males.

Drosophila immigrans Sturtevant is a member of the *nasuta* subgroup of the *immigrans* species group of the subgenus *Drosophila* of the genus *Drosophila*. The Kumaun region is so far represented by two species of the *immigrans* species group, viz. *D. immigrans* Sturtevant and *D. sulfurigaster* Duda. D. immigrans is fairly distributed throughout the Kumaun region, while *D. sulfurigaster* has been recorded only from a few localities. These two species are morphologically very similar and for the identification of these species one has to depend on the genital structures of the male. During the present investigations, an attempt has been made to examine the abdominal pigmentation pattern of *D. immigrans* collected from different geographical localities of this region.