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JUVENILE HORMONE ANALOGUES: EFFECTS OF ZR-777 ON *LIRIOMYZA SATIVAE* AND ITS ENDOPARASITE—(Note).

Several authors (Wright, J. E., and G. E. Spates. 1972. Science 178: 1292-3; Wilkinson, J. E., and C. M. Ignoffo. 1973, J. Econ. Ent. 66:643-5) have found that juvenile hormone analogues (JHA) adversely affect host insects, without disrupting the development of internal parasites. Others (Vinson, S. B. 1974. J. Econ. Ent. 67:335-6; Granet, J., et al. 1975. Ent. Exp. & Appl. 18:377-83; Riviere, J. L. 1975. Entomophaga 20:373-9) have reported adverse effects on host as well as parasite when parasitized hosts were treated with JHA. S.L. Poe (1974. Fla. Ent. 57:415-7) reported that ZR-777, at high rates, not only greatly reduced adult emergence of *Liriomyza sativae* Blanchard, but also suppressed *Opius dimidiatus* (Ashmead) emergence. The experiment reported here was conducted to determine if the effects of ZR-777 were sustained at lower doses on *L. sativae* and *O. dimidiatus*.

Insects for treatment were obtained from a greenhouse colony on bean plants. Parasites were confined, for 24 h, with caged plants containing 3-day-old host larvae. Then the plants were removed from the "parasitization cage", and host larvae allowed to grow in leaves for 2 days after parasitization. Leaves were excised and placed in paper cartons in which host larvae pupated. Pupae were collected and brought to the laboratory where they were treated with the JHA ZR-777 (Pro-2 ynyl 3, 7, 11- trimethyl - (2E, 4E) - 2, 4 - dodecadienoate) Ent. No. 70531, synthesized by Zoecon Research Laboratory.

The JHA was used at 1,000, 1,250, 1,500, 2,000, and 3,000 ppm. Pupae were divided into 6 groups, placed on separate paper towels, and sprayed with 5 dosages (Table 1) of JHA with a small hand sprayer. The 6th group was sprayed with water. After treatment, pupae were placed in paper cartons and kept in the laboratory (temperature 20-25°C, RH:46-74%). The experiment was replicated 3 times.

TABLE 1. EMERGENCE OF *Liriomyza sativae* BLANCHARD AND *Opius dimidiatus* (ASHMEAD) FROM PUPAE TREATED WITH THE JUVENILE HORMONE ANALOGUE ZR-777.

Dosage (ppm)	No. pupae treated	% Emergence	
		<i>Liriomyza</i>	<i>Opius</i>
Check	170	44.96a*	10.89a
1,000	166	44.28a	4.25b
1,250	155	36.78ab	2.55b
1,500	160	37.14a	4.06b
2,000	157	45.87a	2.18b
3,000	159	31.90b	2.55b

* Values in each column not followed by the same letter are significantly different at 95% level by Duncan's MRT.

Counts of emerged insects were made 20 days after treatment. Adult insect emergence was relatively low in the control (Table 1) probably a result of rearing conditions. Only at 3,000 ppm JHA, was adult *L. sativae* emergence reduced significantly. Each dose of JHA significantly reduced parasite emergence, but observed effects among doses were not significant (Table 1). These data confirm that JHA at rates sufficient to disrupt host development are also detrimental to natural enemies. K. M. Lema, and S. L. Poe, Department of Entomology and Nematology, University of Florida, Gainesville, Florida 32611.