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ATTRACTION OF ADULT *EUPHORIA SEPULCHRALIS* (COLEOPTERA: SCARABAEIDAE) TO AROMATIC COMPOUNDS

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Aromatic lures are used throughout the United States for survey and suppression of adult Japanese beetles (*Popillia japonica* Newman). Adults of other scarab species have also been shown to be attracted to aromatic substances. Metzger & Sim (1933), Hamilton et al. (1971), Regniere et al. (1981), and Williams et al. (1990) found many U.S. scarab adults were captured in Japanese beetle traps baited with various aromatic lures. Scarab adults have also been attracted to aromatic compounds in South Africa (Donaldson et al. (1986, 1990), Okinawa (Klein & Edwards 1989), Korea (Reed et al. 1991) and Australia (Allsopp & Cherry 1991). Landolt (1990) reported that adults of two scarab species, the green June beetle, *Cotinus nitida* (L.), and *Euphoria sepulchralis* Fab. were attracted to isopropanol. We report here the attraction of *E. sepulchralis* adults to various aromatic compounds.

Tests were conducted adjacent to sugarcane fields near Belle Glade, Florida during May since previous observations (Cherry, unpublished data) indicated adults of *E. sepulchralis* were present at that time and place. Eleven traps were set in a row adjacent to each of five fields. Catch-can Japanese Beetle traps and lure holders (Trece, Salinas, California) described by Klein & Edwards (1989) were used to capture *E. sepulchralis* adults. Traps along each field were set 20 m apart on metal rods with capture funnels 1 m above ground. Each trap was baited by adding 5 ml to a lure dispenser. Chemicals known to be attractive to Cetoniinae adults (Donaldson et al. 1990) or mixtures of Standard Japanese Beetle lures (Ladd & McGovern 1980) plus an unbaited control were tested at each field. Traps in the five fields were baited and adults collected three days later. This procedure was repeated four times during May, 1991.

After collection, adults were frozen and later dissected to determine sex. Data for the five fields and four test periods were pooled to determine the mean adults/trap/3 days during May for each treatment. These means were tested for significant differences using Scheffe's Test (SAS 1985). Beall (1942) pointed out that variance instability (dependence on the mean) might cause misleading analyses of variance. Our data showed variances dependent on means and the transformation log (y + 1) thus was used to stabilize the variance.

Geraniol and eugenol alone and in mixtures were the most attractive lures for *E. sepulchralis* adults (Table 1). Both sexes were caught in traps baited with these lures. Other studies (Muma 1944, Fleming 1969, Klein & Edwards 1989) on other scarab species have also found both sexes caught in Japanese Beetle traps baited with various lures. Adult catches using geraniol, eugenol + geraniol (7:3), and pheneythyl propionate + eugenol + geraniol (3:7:3)(= PEG), and eugenol were significantly greater than control catches. Isopropanol also appeared attractive to the adults, although catches were not statistically significantly different from controls. Landolt (1990) has shown isopropanol to be attractive to *E. sepulchralis* adults in bucket and vane traps. Other chemicals in Table 1 showed no attraction for the adults.

Adults of *E. sepulchralis* have been reported as injuring ears of corn and feeding on flower and ripe fruit (Ritcher 1966). More recently, *E. sepulchralis* adults have been responsible for damage to rose plants in Mississippi (Spencer & Jarratt 1989). Our data show that several different chemicals could be used in traps to survey, sample, or collect *E. sepulchralis* adults. These attractive chemicals include PEG (Ladd & McGovern 1980) which is the current standard floral lure found in commercial Japanese beetle lures. In addition, we also found that the Japanese beetle sex attractant, Japonilure (R, Z) -5- (1 - decenyl) dihydro -2 (3H) - furanone (Tumlinson et al. 1977), does not affect captures of *E. sepulchralis* adults when used in conjunction with PEG (unpublished data). Hence, traps baited with PEG and Japonilure would also be expected to attract *E. sepulchralis* adults.

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TABLE 1. ADULT *EUPHORIA SEPULCHRALIS* CAUGHT IN JAPANESE BEETLE TRAPS WITH DIFFERENT BAITS DURING MAY, 1991[1]

Lure	Total Trap Captures	% Female	Adults/trap/3 days		
			$\bar{x}$[2]	SD	Range
Geraniol	60	80	3.0	2.1	0- 8
Eugenol + geraniol (7:3)	46	71	2.3	2.3	0-12
Pheneythyl propionate + eugenol + geraniol (3:7:3)	41	76	2.1	2.5	0-11
Eugenol	38	61	1.9	1.7	0- 6
Isopropanol	16	69	0.8	1.2	0- 4
Estragole	5	40	0.3	0.4	0- 1
Isosafrole	3	67	0.2	0.4	0- 1
Cinnamyl alcohol	2	50	0.1	0.3	0- 1
Control (unbaited)	2	50	0.1	0.3	0- 1
4 (P-methoxyphenyl) 2 butanone	2	50	0.1	0.3	0- 1
Beta ionone	1	100	0.1	0.2	0- 1

[1]Each bait was tested in five traps for 3 day periods. This procedure was repeated four times during May, 1991.
[2]Top four means are only means significantly different (P = 0.05) from control mean using Scheffe's Test (SAS 1985) using the log (y + 1) transformation. Untransformed data are presented in Table 1.

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