of host cells and in the cytoplasm as finely granular brownish black precipitants. In the infected snails the activity increased in all these sites. The AcP activity was also found intertubularly in areas, where cells comprising the tubules are lysed or ruptured (Fig. 2). The AcP and AlP activities were also localized in the gut of rediae caecae, caudal pocket and the excretory canals of the cercariae. The AlP activity was greater than AcP activity in the normal *L. luteola* (Fig. 3), the activity is associated with the nuclear membrane, and the cytoplasm mainly in that portion of each cell distad to the tubular lumina (Fig. 3). In the hepatopancreas of infected snails, the AlP activity increased, rediae caused maximum damage to the hepatopancreas resulting in increased (Fig. 4) enzyme activity at the site of ruptured cells. The results indicate that AlP activity is more both in the normal and infected snails and, therefore, it is possible that its carbohydrate metabolism takes place at an alkaline pH. Increased AcP and AlP activities in the infected snail may be due to extensive hydrolytic cytolysis occurring in the hepatopancreas[3,4] and tissue destruction released, enzymes bound in the digestive gland. AcP and AlP was also observed in the excretory tubules of cercaria (Fig. 5) suggesting involvement in energy transfer and in selective excretion. The presence of these enzymes and especially AcP in the area of the caudal pocket may be associated with energy production.

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INFLUENCE OF HOST PLANTS IN THE CONTROL OF GREEN PEACH APHID *MYZUS PERSICAE* SULZ. WITH DIFFERENT CHEMICALS

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THE variation in susceptibility of an insect to insecticides is largely governed by the external changes in the environment. Among the variety of environmental factors, the nature of host plants influences the susceptibility to insecticides to a greater extent[1-2]. *M. persicae* is a serious pest infesting chillies[3], tobacco[4], tomato[5] and many other crops. The present studies were undertaken to find out the influence of the host plant species on the susceptibility of the aphid to certain insecticides.

Experimental

Three field experiments were conducted in a randomized block design with four replications in three crops, *viz.*, chillies (*Capsicum annum* L.), tobacco (*Nicotiana tabacum* L.) and tomato (*Lycopersicum esculentum* Mill.) with a plot size of 25 m^2, at Thirumalairayapuram village where severe incidence of the pest was noticed. Five different spray formulations were tried on all the three crops. Five plants in each plot were selected at random and they were tagged. In each plant five leaves each from the top, middle and bottom regions were selected and the aphid population counted. Counts were made prior to spraying and after three, seven and fourteen days of the spray. The average population per plant after 14 days of the spray was worked out. Square root transformation was adopted for statistical interpretation.

The results presented in Table I indicate that pirimicarb 0·1% and FMC 35001–0·048% were highly effective for the control of *M. persicae* with all the three crops. All the five chemicals tested were highly effective on tobacco. Between tomato and chillies, insecticides pirimicarb and FMC 35001 were equally effective, whereas in the case of the other insecticides, the susceptibility of the aphid was greater when it occurred on tomato than on chillies. This indicates the possible existence of biotypes. All the insecticides excepting pirimicarb failed to register significant reduction in pest population on chillies. This is in general agreement with the large scale field observation. The effectiveness of pirimicarb has been already reported on chillies[6], tobacco[4] and tomato[7] against *M. persicae*.

Reports about the differential susceptibilities of an insect species infesting or reared on different host plants to one and the same insecticide are not infrequent. The susceptibility of *M. persicae* to nicotine

TABLE I

Efficacy of some insecticidal sprays for the control of M. persicae *on three different host plants* (Mean of 4 replications)

Treatments	Mean number of aphids 14 days after spraying						
	Tomato		Chillies		Tobacco		Mean
	No. of aphids	Reduction over precount (%)	No. of aphids	Reduction over precount (%)	No. of aphids	Reduction over precount (%)	
Dichlorvos 100 EC 0·05% + Monocrotophos 40 EC 0·05%	28·20 (5·28)	63·97	85·46 (9·24)	32·38	1·16 (1·20)	99·54	38·27 (5·24)
Phosalone 40 EC 0·07%	40·42 (6·34)	29·45	136·30 (11·67)	14·24	1·20 (1·28)	99·44	59·34 (6·43)
Fenthion 100 EC 0·1% + methyl demeton 25 EC 0·025%	19·90 (3·34)	57·83	52·32 (7·22)	65·00	1·15 (1·28)	99·48	24·46 (3·95)
Pirimicarb 50 DP 0·1%	0·98 (0·98)	98·73	1·25 (0·99)	98·96	0·10 (0·77)	99·97	0·78 (0·89)
FMC 35001 24EC 0·048%	3·46 (1·82)	92·19	4·43 (2·09)	97·46	1·00 (1·22)	99·70	2·97 (1·71)
Control	103·59 (10·17)	..	194·13 (12·41)		314·77 (17·73)	..	204·17 (13·94)
Mean	32·76 (4·66)	..	82·32 (7·68)		53·23 (3·92)	..	..

Figures in parenteses are $(x + 0\cdot5)^{1/2}$ transformed values. C.D. ($P = 0\cdot05$) ; Between treatments = 1·67 ; Between host plants = 1·21 ; Between treatment × host plants = 2·90.

vapours, when reared on nasturtium was greater than in the case of the same aphid reared on climbing dahlia, lettuce and turnip[8].

In the present study aphids collected from one host plant did not thrive and establish on other hosts. This evidently reveals the possibility of varying action on the same aphid species by the same chemical on different host plants.

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