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MORPHOLOGY AND BIOECOLOGY OF FIG SCALE LEPIDOSAPHES

CONCHIFORMIS GMELIN ON ELM TREES (DIASPIDIDAE;

HOMOPTERA) IN ISFAHAN (IRAN) AND ITS CONTROL METHODS<sup>1</sup>

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Three complete generations of the scale were present. The proper

speay time during study period was suggested in first and second generation

Morphological characteristics, damage, local distribution, and seasonal population changes of the scale *Lepidosaphes conchiformis* Gmelin on elm trees were considered.

Two morphological forms of the female scale, one the most common for overwintering and the other most common during growing season were determind. Damage was severe in the central part of the city with a longer history of insecticticide use. The scale overwintered as unoviposited female on trunk and tree branches but their offsprings mostly dispersed on the leaves.

The parasitoid Aphytis libanicus Traboulsi (Aphelinidae; Hymenoptera) and the predator larvae Cybocephalus sp. (Nitidulidae; Coleoptera) were the most common natural enemies of this scale.

Mature larvae and pupae of A. libanicus were collected from ovipositing and unoviposited female and rarely from second stage nymphs. Because of overlapping generation of the host and much shorter life cycle of the parasitoid well synchrony was available between them. therefore we expect this parasioid be important natural control factor o jthe scale

<sup>1 -</sup> Received for publication, Jan.10,1985

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Three complete generations of the scale were present. The proper spray time during study period was suggested in first and second generation respectively in May and July during peak to end of egg hatch.

For integrated control, proper spray application time of insecticides was suggested late in May and early in July while pupae of parasitoid were protected under scale.

## REFERENCES HOLE GIVE YOU LO WHOM

- BALACHOWSKI, A. S., 1954. Les cochenilles palearctiques de la Tribu des Diaspidini. Institut Pasteur, Paris XVe. P: 64 - 68.
- BALALI, GH., 1984. Morphology and bioecology of fig scale (Lepidosaphes conchiformis Gmelin) on elm trees and methodes of control in Isfahan. M. S. dissertation, College of Agriculture, University of Technology, Isfahan, Iran.
- FARAHBAKHSH., GH, 1961. A checklist of economically important insects and other enemies of plant and agricultural products in Iran. Department of plant protection. Ministry of Agriculture. Tehran, Iran. 133 pp.
- KAUSSARI, M. and FARAHBAKHSH GH., 1968. Monographie des Coccoidea Tribu Aspidiotini Sous tribu Aspidiotina au rang de famille Diaspididae. Ministère de l, Agricu lture, Conseil Superieur de Recherches. 140 pp.
- SAMARSINGHE, S. and LEROUX E., 1966. The biology and dynamics of oystershell scale, Lepidosaphes ulmi (L.), (Homoptera: Coccidae) on apple in Quebec. Ann. Ent. Soc. Queb. USA. 206 271.
- STAFFORO, E. M., and BARNES D. F., 1948. Biology of the fig scale in California, Hilgardia, Vol 18, No 15:407 597.
- TRABOULSI, R., 1969. Aphytis libanicus Traboulsi. Ann. Soc. Entomol. Fr. (N. S), 5:66-67.

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