

## POSSIBILITIES FOR INTEGRATED PEST MANAGEMENT ON URBAN TREES

LOZZIA G.C.\*, OTTOBONI F.\*\*, RIGAMONTI I.E.\*

\* Istituto di Entomologia agraria, Università degli Studi di Milano, Italy

\*\* Lofarma allergeni, Milano, Italy

Observations on urban trees, conducted in Milan, Italy, during 1991 and 1992, detected the presence of 15 species of phytophagous mites and 60 species of potentially noxious insects.

The only species of plants badly injured were *Platanus* sp., damaged by Rhynchota Tingidae *Corythucha ciliata* Say, and Siberian elm, defoliated by *Xanthogaleruca luteola* Müll (Coleoptera: Crisomelidae). Maple, lime, false acacia, cherry and hornbeam hosted substantial colonies of some Tetranychidae, Eriophyidae and Rhynchota among which it must be noted that *Eotetranychus fagi* (Zacher) (Tetranychidae), *Anthocoptes punctidorsa* (Keifer) (Eriophyidae), *Drepanaphis acerifoliae* (Thomas) (Drepanosiphidae) and *Cacopsylla ulmi* (Forster) (Psyllidae) were discovered in Italy for the first time.

Investigations have been made on plant attractive factors towards mites and insects, and relationships between arthropods and weather. High population densities have been found on both heavily trimmed plants and on suffering individuals, probably due to a chlorotic aspect or the emission of attractive molecules.

A matter of interest is the presence of respectively 9 and 36 species of beneficial mites and insects, among which 2 species, *Typhloctonus squamiger* (Wainstein) and *Paraseiulus minutus* Athias-Henriot (Acarina: Phytoseiidae), have been discovered in Italy for the first time.

Particularly aphids have been found parasitized up to 60% by Hymenoptera (Aphididae) and actively preyed up by Rhynchota Anthocoridae and Miridae, Diptera (Syrphidae) and Coleoptera (Coccinellidae).

Other families of Hymenoptera important in the biological control of pest species, collected in the urban environment, are Eulophidae, that parasitize pupae of Coccinellidae and *X. luteola*, the latter characterised by inadequate control; more over we can find Eupelmidae and Scelionidae which attack eggs of Pentatomidae and Dryinidae, parasitoids of leafhoppers. Furthermore phytoseiid mites play a decisive role in biological control of Tetranychidae.

Finally we report the importance of untreated plants as reservoirs of beneficial arthropod species. These observations demonstrated the possibility of integrated pest management on urban trees. It allows the limitation of chemical control to few species of trees, respecting damage thresholds. These thresholds have different values and parameters in urban areas in comparison to those used in farming because in this situation it is important to consider the fragile urban ecosystem and citizens' health.