

COCCINELLIDS AS POTENTIAL PREDATORS OF *SAISSETIA OLEAE* (OLIVIER)

S.A.P. Santos¹, J.A. Pereira^{1,2}, L.M. Torres³, J.A. Nogueira⁴

² CIMO and ¹Escola Superior Agrária, Instituto Politécnico de Bragança, Apt. 1172, 5301-855 Bragança, Portugal

³ CITAB/ Departamento de Protecção de Plantas, Univ. Trás-os-Montes e Alto Douro, 5001-801 Vila Real, Portugal

⁴ CESAM and Departamento de Biologia, Universidade de Aveiro Campus de Santiago, 3810-193 Aveiro, Portugal

The indigenous arthropod fauna, as natural control agents of phytophagous species, can have a relevant function in plant protection. Their specific knowledge and their relationships in the agro-ecosystems are in the scope of a sustainable agriculture. This work pretended to study (1) the structure and biodiversity of the community of coccinellids in the olive grove and (2) the existence of potential trophic relationships between this group of predators and the black-scale, *Saissetia oleae*, an important pest of the olive tree in the Trás-os-Montes region, by integrating both field and laboratory research. The field work was conducted in two olive groves with different agricultural systems (Organic Farming and Integrated Pest Management) in two consecutive years, 2002 and 2003. A total of 23 species of coccinellids were identified and *Chilocorus bipustulatus* (L.), *Scymnus (Pullus) subvillosus* (Goeze), *Scymnus (Mimopullus) mediterraneus* labkoff-Khnzorian, *Scymnus (Scymnus) interruptus* (Goeze) and *Rhyzobius chrysomeloides* (Herbst) showed to be the most common species in the olive grove of Trás-os-Montes region. Temporal synchrony between the abundance of coccinellids and the abundance of the different phenological stages of *S. oleae* was investigated and significant associations were found between the first-instar nymphs and *P. subvillosus* and *S. interruptus*. Furthermore, between the second-instar nymphs and *C. bipustulatus* was also found a significant positive association. A polyclonal antiserum against *S. oleae* was produced and used in an indirect enzyme-linked immunosorbent assay (ELISA) to detect remains of this pest in the gut of coccinellids. *C. bipustulatus* and coccinellid larvae obtained the highest percentages of positives. Important steps were made in the direction of understanding which coccinellid species are potential predators against the black-scale.

Key words: Integrated protection, organic farming, black-scale, coccinellids, predation, ELISA.