

**Faunistic analysis of Auchenorrhyncha species in olive orchards of  
Maria da Fé (Minas Gerais), Brazil**

**J.A. Froza, F.V. Correr & J.R.S. Lopes**

Department of Entomology and Acarology, University of São Paulo/ESALQ, Piracicaba, SP, Brazil. E-mail: jrslopes@usp.br

Many species of Auchenorrhyncha are economically important as vectors of phytopathogenic bacteria and viruses. Over 40 species of sharpshooter leafhoppers (Hemiptera: Cicadellidae: Cicadellinae) and spittlebugs (Hemiptera: Cercopoidae), which have in common the xylem-feeding habit, are vectors of *Xylella fastidiosa*, a xylem-limited bacterium that causes an increasing number of diseases in several fruit crops and ornamental plants (Redak *et al.* 2004). Olive quick decline syndrome is a new and very destructive leaf scorching disease occurring in epidemic levels in southern Italy, caused by *X. fastidiosa* subsp. *pauca* (CoDiro strain). Interestingly, a similar disease, named Olive leaf scorch (OLS), was recently reported in olive orchards of the Mantiqueira Mountain Range region, in the states of Minas Gerais (MG) and São Paulo, Brazil (Coletta-Filho *et al.* 2016). Unlike Italy, where the meadow spittlebug *Phileanus spumarius* was identified as a main vector in olives, there is no information on the identity of possible vectors associated with OLS spread in Brazil, particularly for the higher elevations and cooler climate of the Mantiqueira Mountain Range. Therefore, we conducted a faunistic analysis of Auchenorrhyncha species in three olive orchards ('Atemoia', 'Suiça' and 'Lago') in Maria da Fé (MG), located at an elevation around 1,300 m in the Mantiqueira region. The insects were sampled by using yellow sticky traps hanged at 0.8 and 1.6 m on the olive tree canopy, in nine trees per orchard, spaced 30 m from each other. The sticky cards were replaced fortnightly from June/2015 to March/2017 and the insects were identified by dichotomic keys, comparison with specimens of reference collections and analysis of male genitalia (Azevedo-Filho & Carvalho 2006). A total of 19,930 specimens of 221 species of Auchenorrhyncha were collected in the three orchards, distributed in 10 families (% of the total number of specimens; number of species): Achilidae (0.24%; 2), Aetalionidae (0.18%; 1), Cercopidae (0.82%; 1), Cicadellidae (67.15%; 167), Cixiidae (0.01%; 1), Clastopteridae (7.67%; 3), Delphacidae (0.01%; 2), Dictyopharidae (0.03%; 1), Issidae (0.005%; 1) and Membracidae (23.88%; 44). Jaccard similarity indices were 55% between 'Lago' and 'Suiça' orchards, 54% between 'Lago' and 'Atemoia', and 49% between 'Atemoia' and 'Suiça'. The highest indices of diversity of Shannon and richness of Margalef were observed for 'Suiça' (3.35 and 20.62, respectively), whereas the lowest were observed for 'Lago' (2.98 and 16.3, respectively). 'Atemoia' presented the higher index of equitability, showing that the hopper species are more uniformly distributed in this orchard. The faunistic analyses indicated 23 prevalent species (classified as dominant, very abundant, very frequent and constant) in one or more orchards: 17 Cicadellidae [2 Agalliinae (*Agallia* sp. 1, *Agallia* sp. 2), 9 Cicadellinae (*Bucephalagonia xanthophis*, *Diedrocephala bimaculata*, *Dilobopterus dispar*, *Erythrogonia dorsalis*, *Erythrogonia phoenica*, *Macugonalia cavifrons*, *Macugonalia leucomelas*, *Oncometopia facialis* and *Scopogonalia* sp. 1), 1 Deltocephalinae (*Balclutha hebe*), 4 Iassinae (*Gypona* sp. 1, *Gypona* sp.

3, *Reticana lineata*, *Sordana sordida*) and 1 Typhlocybininae (*Empoasca* sp. 1)], 2 Cercopoidea [1 Clastopteridae (*Clastoptera* sp. 1) and 1 Cercopidae (*Sphenorhina rubra*)], and 4 Membracidae (*Bolbonota* sp. 1, *Cyphonia* sp. 1, *Enchenopa* sp. 1, *Entylia* sp. 1). The data of the three orchards of Maria da Fé (MG), 70 sharpshooter leafhoppers (58 Cicadellini and 12 Proconiini) and 3 spittlebugs (1 Cercopidae and 4 Clastopteridae), indicate a high diversity of xylem-feeding species compared to previous surveys in citrus, coffee and grape orchards in Brazil. Among the predominant sharpshooters found in Maria da Fé, *B. xanthophis*, *O. facialis* and *M. leucomelas* were already reported as vectors of *X. fastidiosa* in citrus. Because vector specificity is low, it is expected that other xylem-feeding species will be proven to transmit *X. fastidiosa* in olives, if tested.

Financial support: São Paulo Research Foundation (FAPESP, Proc. 16/02176-7)

### References

- Azevedo Filho, W.S. & Carvalho, G.S. (2006) *Cigarrinhas de citros no Rio Grande do Sul – Taxonomia*. EDIPUCRS: Porto Alegre, 141pp.
- Coletta-Filho, H.D. *et al.* (2016) First report of olive leaf scorch in Brazil, associated with *Xylella fastidiosa* subsp. *pauca*. *Phytopathologia Mediterranea*, 55(1), 3–8.
- Redak, R.A. *et al.* (2004) The biology of xylem fluid-feeding insect vectors of *Xylella fastidiosa* and their relation to disease epidemiology. *Annual Review of Entomology*, 49, 243–270.