MONITORING OF THE APHID FAUNA OF VECTOR-BORNE VIRUSES IN A NEWLY INTRODUCED YELLOW PASSION-FRUIT COMMERCIAL CROP

Renata M. Garcêz[1]; Leonardo A. Silva[1]; Alexandre L. R. Chaves[1]; Marcelo Eiras[1]; Laura M.M. Meletti[2]; Joaquim A. Azevedo Filho[3]; Addolorata Colariccio[1].

[1]Lab. Fitovirologia e Fisiopatologia, Instituto Biológico, São Paulo, SP, Brazil, Zip Code 04014-002; colariccio@biologico.sp.gov.br
[2]Centro de Pesquisa e Desenvolvimento em Recursos Genéticos, IAC, Campinas, SP, Brazil;
[3]Pólo Regional do Leste Paulista, APTA, IAC, Monte Alegre do Sul, SP, Brazil.

Brazil is the world's largest producer of passion-fruit (*Passiflora* spp.) with a production of 492 thousand tons yearly. The "woodiness disease", induced by *Cowpea aphid-borne mosaic virus* (CABMV), is the most important viral disease affecting this crop in Brazil, and has led producers to migrate to new regions or to abandon its cultivation. CABMV induces fruit woodiness, causing loss of production and economic losses. Both CABMV as well as the *Cucumber mosaic virus* (CMV, *Cucumovirus*) are reported in passion-fruit, and transmitted by several species of aphids in a non-persistent manner. For twelve months (May/2010 to April/2011), in an area of 1,000 m^2, characterized by the recent introduction of passion-fruit cultivation, in the municipality of Pinhalzinho (22°40'55"S/46°40'51"W, altitude of 750 m), state of São Paulo, virus-host-vector interactions were monitored in an orchard with 200 plants of yellow passion-fruit (*P. edulis* f. *flavicarpa*) cultivar IAC-275. The virus detection in passion-fruit and weed species was monitored monthly, through PTA-ELISA with polyclonal antiserum against CABMV and CMV. To determine the abundance of aphids, we used yellow sticky and Moericke-type traps in the field. Aphids captured were counted and identified under a stereomicroscope and using a dichotomous key. In July [winter with temperature average of 10°C (T_{min}), 26°C (T_{max}) and rainfall of 31.8 mm], there was a greater abundance and diversity of species, prevailing *Aphis fabae*, *A. gossypii*, *Toxoptera citricidus*, *Uroleucon ambrosiae* and *Pemphigus bursarius*, while *A. craccivora*, *A. nasturdii*, *A. spiraecola*, *Aulacorthum solani*, *Macrosiphum euphorbiae*, *Myzus persicae* and *T. aurantii* were characterized as secondary. In January [summer with temperature average of 18°C (T_{min}), 29°C (T_{max}) and rainfall of 521.3 mm], we found a lower diversity, recording *A. fabae*, *A. gossypii*, *T. citricidus*, *U. ambrosiae*, *P. bursarius* as the most abundant and *Pentalonia nigronervosa* as secondary species. Population density of aphid fauna flying over the crop was estimated at 99,000 aphids/1,000 m^2 in winter and 89,700 aphids/1,000 m^2 in summer. In this period, it was not detected the presence of virus in the passion-fruit plants, but the weeds *Bidens pilosa*, *Crotalaria* sp. and *Nicandra physaloides* behaved as reservoirs of CMV. Despite the pressure of virus and vectors in the region monitored, it was concluded that the transfer of passion-fruit crops for new areas, with sporadic source of virus inoculums, can be a recommended practice to delay the entry of CABMV and CMV.

Fellows of CAPES, FAPESP