

***Brevipalpus* MITE TRANSMITTED-VIRUSES (BTV) - WHAT WE KNOW ABOUT THEM?**

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At the end of XXth century, information about BTV were still scarce. The first disease to be reported was citrus leprosis in Florida in 1911, but involvement of *Brevipalpus* mites with the disease was discovered only in 1940. Subsequently other BTV as coffee ringspot, orchid fleck and passion fruit green spot were described. Three *Brevipalpus* species (*B. californicus*, *B. obovatus*, *B. phoenicis*) were found to serve as vectors. However, in the last 20 years, an exponential increase in the knowledge on these viruses and *Brevipalpus* mites occurred, mainly centred on citrus leprosis pathosystem. So far most of known BTV occur in the Americas, where they possibly evolved after the continental drift 65-135 million of years ago. Electron microscopy and molecular techniques confirmed that at least two different types of BTV exist: the cytoplasmic (BTV-C) and nuclear (BTV-N) types, depending on their replication site within infected cells, possibly resulting from a convergent evolution. Some of the known BTV and others recently described had their genome characterized, which permitted to define their taxonomic position and phylogenetic relationship among them. Molecular and immune tools are available for detection of many BTV. It was found that distinct BTV may cause similar symptoms in the same host, as in the case of leprosis (C type: CiLV-C, CiLV-C2; N type: OFV-Ci, CiLV-N, CiCSV) on orange plants. Epidemiology and integrated management control has been established for the citrus leprosis pathosystem, especially that caused by CiLV-C. Several peculiarities on the biology of *Brevipalpus* mites were found, and their taxonomy underwent significative changes due to the introduction of new morphological criteria and use of molecular markers, thus identification of the BTV vector species is under reappraisal. Situation is complex, because mixed infestation of plants by diferent *Brevipalpus* species is quite common. Based on transmission parameters and detection of some BTV within the mite vector, virus-vector relationship is undoubtedly of persistent, circulative type, being only circulative with C type, and circulative-replicative with N type. Genes of CiLV-C have been expressed in transgenic plants, providing information about their function. On the other hand, metabolic alterations in CiLV-C-infected *Arabidopsis* have been studied, as well as in the viruliferous *B. yothersi*. These recent advances came out through national and international cooperative works by groups of ESALQ, CCSM, Inst. Biológico, Unesp/Jaboticabal, Fundecitrus, Embrapa (Biotecnologia, Mandioca e Fruticultura), Univ. Brasília, Univ. Fed. Lavras (Brazil), Univ. Florida, USDA, Univ. Kentucky (US), Univ. Greifswald (Germany), INRA (France), Univ. Amsterdam (the Netherlands), Univ. Queensland (Australia), Okayama Univ. (Japan), Colegio Pós-Grado (Mexico), Corpoica (Colombia), INTA (Argentina), Univ. Nac. Assunción (Paraguay), SAG (Chile), Univ. C.Rica (Costa Rica).

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