



***Brevipalpus* MITES IN BRAZIL: A BIG CHALLENGE!**

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During the last five years, studies on flat mites in Brazil have increased because of their economic importance and the new findings on their plant virus associations. The genus *Brevipalpus* is considered the most important flat mite genus of the family Tenuipalpidae. Many species in this genus are important not only due to the feeding damage directly caused to their hosts, but also because several species are vectors of highly destructive plant viruses. The most common economic species of *Brevipalpus* are placed within three species groups, the *phoenicis*, *californicus* and *obovatus* species groups, which together include over 60 species, many of which are in need of redescription and more accurate meaningful species diagnoses. Recently, several new species have been identified and described, including several cryptic species within the *Brevipalpus phoenicis* species group. Two former synonyms of *B. phoenicis* (Geijskes) sensu lato, *B. yothersi* Baker and *B. papayensis* Baker, were resurrected and redescribed, along with four new species that were initially misidentified as *B. phoenicis*, namely *B. azores* Beard & Ochoa, *B. feresi* Ochoa & Beard, *B. ferraguti* Ochoa & Beard, and *B. tucuman* Beard & Ochoa. New morphological characters, significant for species separation, have been discovered using low temperature scanning microscopy and have been included in currently available diagnostics. Historical mite identification data, along with host plant and virus records, indicate that an integrated morphological and molecular approach is critical for advancing diagnostics for the genus *Brevipalpus*.