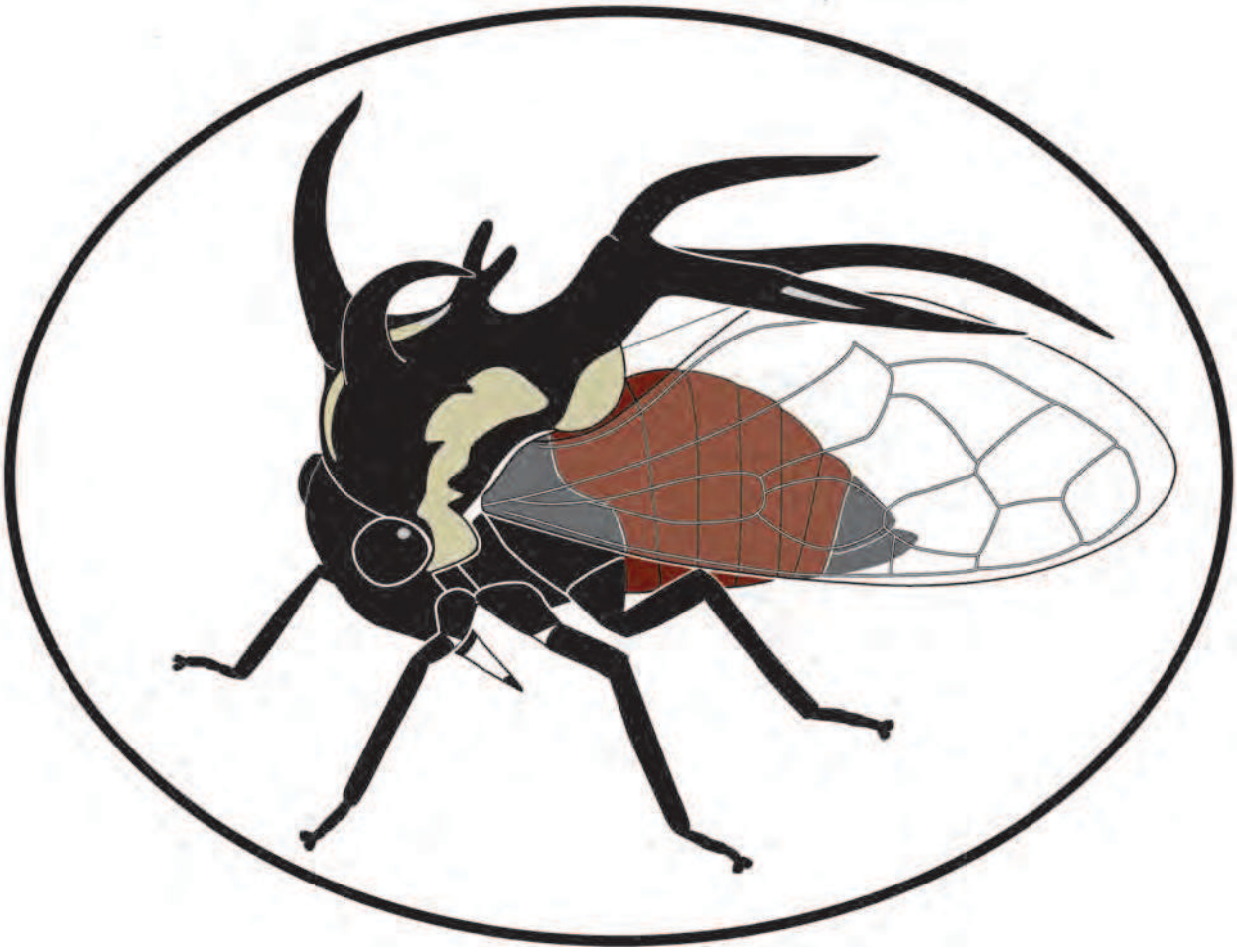
XV International Auchenorrhyncha Congress



2017 Brazil

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ABSTRACTS BOOK

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Bacterial associates of the planthopper *Ommatidiotus dissimilis* (Fallén, 1806) (Hemiptera: Caliscelidae)

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Nutritional symbiosis between insects and microorganisms (bacteria and/or yeast) is widespread in nature (Buchner 1965). Numerous studies (Wilkinson and Ishikawa 2001; Douglas 2009; McCutcheon & Moran 2010) indicate that the occurrence of symbiotic microorganisms in hemipterans which feed on phloem or xylem sap is related to their restricted diet which is deficient in essential amino acids and vitamins. It is known that the major function of these symbiotic microorganisms is to provide amino acids and vitamins lacking in phloem or xylem sap to their host insect. Among insects, symbiotic systems (the localization of symbionts in the host insect body, their systematic affinity and mode of transmission between generations) of Fulgoromorpha are poorly known. Fragmentary data concerning symbionts of planthoppers reveal that their ancestral, obligatory symbionts are bacteria *Sulcia muellerii* and *Vidania fulgoroidea* (Urban and Cryan 2012). The aim of this research was to study the systematic affinity, distribution and the mode of inheritance of microorganisms associated with the planthopper *Ommatidiotus dissimilis* (Caliscelidae), strictly monophagous on *Eriophorum vaginatum* (Cyperaceae). Our histological and ultrastructural observations have shown that *O. dissimilis* is host to five distinct types of bacteria. Molecular analysis based on 16S rDNA sequences of bacteria has indicated that they belong to the following genera: *Sulcia*, *Vidania*, *Sodalis*, *Wolbachia* and *Rickettsia*. Bacteria *Sulcia*, *Vidania* and *Sodalis* are localized in separate bacteriocytes, whereas small, rod-shaped bacteria *Wolbachia* and *Rickettsia* are dispersed in various insect tissue types. All symbionts are transovarially transmitted from one generation to the next. Individual bacteria leave the bacteriocytes and migrate towards the ovaries. The infection of ovarioles takes place during late vitellogenesis. The bacteria invade the posterior pole of the oocyte. They pass through spaces between the neighboring follicular cells or through their cytoplasm and then gather in the perivitelline space.

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