OCCURRENCE OF *Frankliniella* sp. (THYSANOPTERA, THRIPIDAE) IN *HANCORNIA SPECIOSA* (GOMEZ) FLOWERS: A NEW THRIPS HOST PLANT

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INTRODUCTION

Thrips are well known for their small size, high mobility and economic damage it provokes in many crop systems. These insects feed on various parts of the flower thereby causing retardation of growth, destruction of buds and flowers and malformation of fruits (Ananthakrishnan, 1993). In this aspect, the most studied family of thrips is Thripidae, with 1700 known species. The Thripidae is found worldwide and includes almost all of the pest species of thrips. Many genera are associated only with flowers of some dicotyledonous plants on which they feed on nectar, pollen, floral tissues and breed (Monteiro, 2002).

However, studies examining the detailed biology and ecology of thrips increased in last years and contributed directly to our understanding of how thrips live, the processes underlying their diversification, their interactions with other insects and world distribution (Mound & Marullo, 1996; Mound, 2005). It is easy to consider some associations with plants as merely predation but Mound & Terry (2001) and Momose et al. (1998) proved that on some plant species, thrips are pollinators. It is also considered by Mound (2005) the action of thrips as predators of other insects.

In Brazil about 500 species were listed and still most interest lies on those species which causes crop damage or transmit *Tospoviruses*, being the genus ***Frankliniella*** the focus of attention (Monteiro, 2002). Identification of these species both during the adult and larval stages is essential for the establishment of "host plants" and such studies are the base to establish ecology interactions.

Considering that thrips are attracted by small, white, and highly scented flowers (Mound & Terry 2001), we decided to study ***Hancornia speciosa.*** This is a common cerrado tree and its flowers are white, with a sweet scent, nectar and pollen in abundance (Darrault & Schlindwein, 2005). During its flowering period this tree was seen to support large amounts of thrips in its flowers. This work aimed to measure thrips population present in the flowers of ***Hancornia speciosa***, and to determine if this plant could be considered as a host for these insects.

MATERIAL AND METHODS

Characterization of the botanical species

Hancornia speciosa (Gomez) is a lactiferous and deciduous tree, 2-5 meters high and its flowers are hypocrateriform, presenting a long (average = 3.4 cm; range 2.5-4.2 cm) and narrow (mean diameter = 0.12 cm) flower tube. The apertures are 1.0 mm in diameter. Flowering occurs from October to January (Darrault & Schlindwein, 2005).

Processing of the collected material

The study was conducted from October to December 2006 in cerrado *stricto sensu* of the Clube de Caça e Pesca Itororó de Uberlândia (CCPIU) - MG (18º,59'S; 48º,18'W). Twenty individuals of ***Hancornia speciosa*** were randomly selected and flowers were weekly collected until the obtaining of 20 by individual, totaling 400 flowers. The collected flowers were maintained in alcohol until laboratory analyses using stereomicroscopes and brushes of fine tip. The insects were separate by sexual gender and stage of development. Microscope slides were mounted according Mound & Marullo (1996). Simply, it consists in mounting the insects in slides without maceration, using Hoyers Mountant and placing it into an oven to dry for three weeks.

Processing of the data

The statistical analyses were made using BioEstat 3.0 ® and Systat 10.2 ® softwares. Normality tests (D'Agostinho-Pearson for k samples) were applied for the number of males, females and larvae and later Kruskal-Wallis test to verify possible

significant differences among the samples. The sex ratio was made using one sample *t* test.

RESULTS AND DISCUSSION

The genus of thrips found, according the taxonomic key in Mound & Marullo (1996), was ***Frankliniella* sp.** Species recognition in ***Frankliniella*** is peculiarly difficult, particularly amongst small pale-bodied forms with a swelling on the pedicel of antennal segment III. This descriptions fit in the specimens found in this work, which were yellow to pale in color, small in size (1.2714±0.0262mm; n=50) and possessed a pronounced ring on the base of antennal segment III. These individuals exhibit sexual dimorphism, where the female possesses ovipositor turned down, visible ventrally in the last abdominal segments. The male possesses the abdomen slightly rounded at the extremity. There is a chance of to be a new species.

The total 884 individuals sampled were composed of 323 females (0.8075±1.1263; M±SD), 263 males (0.6575±1.0691; M±SD), and 298 larvae (0.7450±1.0876; M±SD). Kruskal-Wallis test didn't reveal significant differences among the number of males, females and larvae (H=5.8385; p=0.0540). In 23.5% of the analyzed flowers males were found simultaneously with females, and the sex ratio had significant difference, *t*=2.682; p=0.009, with a high number of females. Most field populations are predominantly female because of the grater longevity of females than males. A single male can effectively fertilize a large number of females (Ananthakrishnan, 1993). Any pupa or propupa was found, and presumably they fall on the ground to complete their metamorphosis (Mound & Marullo, 1996).

Migration of thrips between ***Hancornia speciosa*** flowers may occur. In 22.75% of the analyzed flowers, only females were found. Considering the presence of wings and the sexual reproduction of this family we can conclude that migration occurs among flowers in order to find partners for reproduction. In 16.5% of flowers, only larvae were found, that is, after oviposition females left the flower.

The relationships with the host plants seems to be limited mainly by the availability of food resources but as many plants offer suitable places of concealment and favorable microclimate tolerance (Ananthakrishnan, 1993), thrips may be found foraging in one plant while breeds in another (Mound & Marullo, 1996). Successful interaction of thrips with their host plants appears to depend on a complex set of environmental, visual, tactile and chemical factors that appreciably influence the behavior and physiology of insects allowing them to breed in specific hosts. Usually, food specialization tends to result in host specificity (Ananthakrishnan, 1993). In ***Hancornia speciosa*** the reproduction and occupation of its flowers by thrips seems to be linked to the flowering phenology of the plant, because when the flowering period ends, thrips are no more found on the three and possibly occupy other plant species which also offers conditions for reproduction. Migration flight from breeding sites is a regular event in the life cycle of many species, resulting in widespread dispersal, ensuring fresh food for breeding populations and sheltered sites for protection during unfavorable seasons (Ananthakrishnan, 1993).

Since we found simultaneously adult and larvae thrips in ***Hancornia speciosa*,** we can conclude that this is as a host plant for ***Frankliniella* sp.** This conclusion allows us now to establish aspects of ecological succession involving migration, dispersal, population dynamics, the factors responsible for host plant utilization and the damages or coming benefits of the occupation of thrips in the flowers of ***Hancornia speciosa*.**

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