Gynaikothrips uzeli (Zimmermann) and Androthrips ramachandrai Karny (Thysanoptera, Phlaeothripidae), first records for Argentina

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RESUMEN
Se cita por primera vez para la Argentina Gynaikothrips uzeli y Androthrips ramachandrai en agallas sobre hojas de Ficus benjamina en la Provincia de Misiones. La primera de estas especies es fitófago inductor de agallas y la segunda presumiblemente predadora. Se brinda una descripción breve y se ilustran ambas especies.

ABSTRACT
Gynaikothrips uzeli, and Androthrips ramachandrai are recorded at the first time for Argentina in leaf galls of Ficus benjamina in Misiones province. The first is phytophagous and gall inducer; but the second is probably a predator. A brief description and illustrations of both species are given.

INTRODUCTION
Ficus benjamina L. is an ornamental shrub commonly used in the region of the North East of Argentina (NEA), mainly the provinces of Corrientes and Misiones. Its use can be either for ornamentation of parks or for urban trees. Recently, at several
localities in Misiones Province, leaves of this tree were observed formed into galls or folded along the central vein and thrips were found associated with these symptoms.

Initially, the damage was attributed to *Gynaikothrips ficorum* (Marchal), the only species in this genus recorded from Argentina (4, 6) in 1968 on leaves of *Ficus laevigata* Blanco. Apparently this species is widespread in the Federal Capital of Argentina (5).

The genus *Gynaikothrips* comprises 41 species considered valid (13). It is characterized by antennal segment III with one sensorium and 3 or (3 + 1) on segment IV. Also not all the pronotal setae are well-developed, and there are numerous deep striations on the pronotum, giving it a strongly sculptured look (15).

**Objective**

The aim of this work is to record for the first time two species of thrips from Argentina associated with galled leaves on *Ficus benjamina*.

**MATERIALS AND METHODS**

Two samples of thrips were collected on plants of *Ficus benjamina* with the help of a fine brush. Insects were preserved in alcohol at 70% and carried to the Fitovirología laboratory of EEA Mendoza INTA for identification. Material was cleared with KOH to 10%, then, it was transferred to capsules with increasing concentrations of ethyl alcohol for their dehydration. It completely cleaned in clove oil and mounted on slides into Balsam of Canada (15).

The specimens were identified with the help of keys and by confrontation with descriptions (1, 10, 11, 12, 14, 15). The material was photographed using a microscope Zeiss Axiostart Plus equipped with a digital camera. Specimens are deposited in the EEA Mendoza INTA fitovirología laboratory.

**RESULTS**

According to the study of the morphological characters of adults found in Misiones, these correspond to the species *Gynaikothrips uzeli* (figure 1, p. 255). With adults of *Gynaikothrips* were found larvae (figure 2, p. 255), other immature of this species and female adults of *Androthrips ramachandrai* (figure 3, p. 255). This last characterized by the presence of fore femurs thickened, with a tooth near to their base, and few small tubercles in the inner side of them and a tooth in each fore tarsus.

Viewed a stereoscopic microscope are distinguished among themselves because *Gynaikothrips* presents the last abdominal segment (tube), comparatively longer, antennas longer and thin, predominantly yellow and not thickened fore femurs.
**Gynaikothrips uzeli**. 1 Adult ♂. 2 Larva. 3 Androthrips ramachandari ♀.

**Brief description of the species**

_Gynaikothrips uzeli_ (Zimmermann, 1900)

Female macroptera

Colour. Body brown, antennal segment III-VIII, tarsus, fore tibias and apical part of the middle and hind tibias yellow. Forewings pale.
**Gynaikothrips uzeli.** 4 Head. 5 Pronotum y Mesonotum. 6 Antenna. 7 Forewing.

*Structures.* Head longer than wide, strongly striate, with a pair of short setae behind to posterior ocellus and two pairs of well developed setae blunt pointed not in a row behind of the eyes, maxilars stylets far apart each other about a thirds of the head wide (figure 4). Antenna 8-segmented (figure 6), III with one sensorious y IV with three sensorious. Pronotum strongly sculpturated, with epimeral setae and usualy posteroangulars well developed, anteromarginals y anteroangulars with variable length (figure 5).
Fore tarsus with one small tooth each one. Mesonotum reticulate, with the thirds divided (figure 5, p. 256). Metanotum also reticulate. Forewing parallel sided, with about 15 duplicated cilia. (figure 7, p. 256). Pelta broadly triangular; tergites II - VII with two pairs of sigmoid wing-retaining setae; tube equal or scarcely longer than head.

Male macroptera (figure 1, p. 255) similar to female but smaller.

**Examined material:** 5 ♀♀ and 8 ♂♂ collected by J. P. Agostini, October of 2010, on leaves gall of *Ficus benjamina*, Eldorado, Misiones province. In table is showed measurements of some setae, head and tube of examined material.

### Table

Length in micra of head, tube and some pronotal setae of *Gynaiothrips uzeli* specimens from Argentina.

<table>
<thead>
<tr>
<th>Features</th>
<th>Female (n=5)</th>
<th>Male (n=8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td>Head</td>
<td>313</td>
<td>270 - 341</td>
</tr>
<tr>
<td>Tube</td>
<td>372</td>
<td>310 - 415</td>
</tr>
<tr>
<td>Pronotum</td>
<td>183</td>
<td>161 - 203</td>
</tr>
<tr>
<td>Body</td>
<td>2,840</td>
<td>2,580 - 3,180</td>
</tr>
<tr>
<td>Pronotal setae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>anteromarginal</td>
<td>59</td>
<td>49 - 73</td>
</tr>
<tr>
<td>epimeral</td>
<td>143</td>
<td>112 - 166</td>
</tr>
<tr>
<td>posteroangular</td>
<td>132</td>
<td>90 - 159</td>
</tr>
<tr>
<td>discals</td>
<td>13</td>
<td>12 - 15</td>
</tr>
<tr>
<td>Ratio head/tube</td>
<td>0,84</td>
<td>0,80 - 0,88</td>
</tr>
<tr>
<td>Ratio epimeral/posteroangular</td>
<td>0,92</td>
<td>0,80 - 1,00</td>
</tr>
</tbody>
</table>

**Androthrips ramachandrai** Karny, 1926
Female macroptera (figure 2, p. 255).

**Colour.** Body and legs brown, tarsi yellow, antennal segment III, fore tibiae, apex of midle and hind tibiae yellow, antenal segments IV - VI lighet brown with base variably yellow (figure 8, p. 258); forewings pale.

**Structures.** Head scarcely longer than wide; postocular setae long with apex weakly capitate behind of eyes; maxillary stylets about one third of head length apart. Antennae 8-segmented; segment III with three sensoria, IV with four sensoria. Pronotum with almost no sculpture; four pairs of major setae present, anteromarginals not developed. Fore femur thikened (figure 9, p. 258), with a tooth near base and rounded tubercles on inner margin (figure 10, p. 258), fore tarsal tooth well developed (figure 11, p. 258). Metanotum with weakly linear reticulation. Forewing weakly constricted medially; about 12 duplicated cilia present. Pelta elongate triangular; tergites II - VII with two pairs of sigmoid wing-retaining setae; tergite IX setae S1 almost as long as tube.

**Examined Material:** 5 ♀♀ collected by J. P. Agostini, October of 2010, on leaves gall of *Ficus benjamina*, Eldorado, Misiones province.


Androthrips ramachandrai.
8 Antenna. 9 Fore femurs. 10 Detail of tooth and tubercles at inner side of fore femurs. 11 Detail of tooth of fore tarsus.

DISCUSSION

Ocurrence of Gynaikothrips uzeli and Androthrips ramachandrai has been reported recently in different countries of the Americas: Southern USA (1, 9, 10), México (3), Puerto Rico (2), Costa Rica (18) and Colombia (16). Both of these thrips species are native to Southeast Asia, and their introduction and dispersal in America
can be attributed to the horticultural trade in _Ficus benjamina_. _Gynaikothrips uzeli_ induces galls on leaves of this plant, and is frequently accompanied by species of the genus _Androthrips_. One species of this genus, _Androthrips flavipes_ Schmutz (17), is considered to be a predator, and this is most likely also true of _A. ramachandrai_.

According to reports by Mound and collaborators (14, 15), in Southeast Asian populations _G. uzeli_ presents a great variability in the length of the pronotal setae. Although only a limited number of specimens were measured in the present study, a similar a wide range of setal lengths was found (table, p. 271). The length of the poseteroangulars setae has been used to distinguish different species, and the variation gave rise to doubts about the identity of _G. ficorum_ and _G. uzeli_. These two species are distinguished from each other by the short posteroangular setae of _G. ficorum_ (less than 50% of the epimeral setae), whereas the posteroangular setae are long in _G. uzeli_.

Unfortunately, any specimens with posteroangular setae near to 50% of the epimerals could be assigned to either of these species. However, the two thrips species seem to have preferences for different host plants. _G. ficorum_ usually lives on _Ficus microcarpa_, whereas _G. uzeli_ lives on _Ficus benjamina_. This difference in behavior supports the hypothesis that these are distinct species.

In this work, were found only two male specimens of _Gynaikothrips_ with short poseteroangular setae (0.4 as long as epimeral). This could be attributed to a mixture of both species or a more likely due to a great variations of poseteroangular setae in _G. uzeli_. This problem could be solved with rearing studies and a long series of sample collected on individual leaf gall.

In addition to these two species of _Gynaikothrips_ from the American continent, Retana (18) described _Gynaikothrips garitacambroneroi_, mainly based on the length of the pronotal setae and the male genitalia. This species was studied and ratified by some researchers (7, 16, 19), but in view of the great morphological similarity to _G. uzeli_ and the preference for the same host it was placed in synonymy by Goldazarena _et al_. (8).

CONCLUSION

According to morphologic feature observed in examined specimens, and the aforementioned background we conclude that found species correspond to _Gynaikothrips uzeli_ and _Androthrips ramachandrai_ and both are recorded at the first time for Argentina.

REFERENCES


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