



FIRST RECORD OF *LEPTOCYBE INVASA* FISHER & LA SALLE (HYMENOPTERA: EULOPHIDAE) AND *RHOMBACUS EUCALYPTI* GHOSH & CHAKRABARTI (ACARI: ERIOPHYIDAE) FROM PARAGUAY

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Abstract.- The occurrence of *Leptocybe invasa* Fisher & La Salle, 2004 (Hymenoptera: Eulophidae) and *Rhombacus eucalypti* Ghosh & Chakrabarti, 1987 (Acari: Eriophyidae) as new pest for *Eucalyptus sp.* in Paraguay is reported in this work.

Key words: *Eucalyptus*, *pests*, *first record*, *Paraguay*, *San Lorenzo*.

Resumen.- En este trabajo se reporta la ocurrencia de *Leptocybe invasa* Fisher & La Salle, 2004 (Hymenoptera: Eulophidae) y *Rhombacus eucalypti* Ghosh & Chakrabarti, 1987 (Acari: Eriophyidae) como nuevas plagas de *Eucalyptus sp.* en Paraguay.

Palabras clave: *Eucalyptus*, *plagas*, *primeros registros*, *Paraguay*, *San Lorenzo*.

The reforested area in Paraguay occupies at least 60,000 hectares, mainly with species of the genus *Eucalyptus*, considering their silvicultural characteristics and the technological properties of their wood.

To date, few studies have been conducted in relation to forest pests in this country. However, the first author, in a faunistic study carried out in the Department of Guairá, in two communities of *E. citriodora*, managed to collect and identify 37 species of Scolytidae, 6 species of Platypodidae and 3 of Bostrichidae, citing as dominant

species: *Cryptocarenum heveae* *Hypothenemus obscurus*, *Xyleborus affinis*, *Xyleborus ferrugineus*, *Xyleborus bolivianus* and *Hypothenemus eruditus* (Benítez Díaz, E.A 1996).

In terms of acarology fauna, there are no relevant studies besides the work of Aranda (1969). This author mentions only two species of mites found in eucalyptus: *Tetranychus desertorum* (Banks 1900) and *Tydeus* spp. (Koch 1895), the former in the locality of Cecilio Báez (C.Oviedo) and the latter in Concepción.

Recently, two new pests were detected for



Figures 1-2. *Leptocybe invasa*. 1) Female specimen. 2) Adult individual on a gall. Photos: E.A. Benítez, 2012.

Nota



Figures 3-4. Damage caused by *Leptocybe invasa*. 3) Galls on leaves. 4) Damages on leaves and petioles. Photo: D. Godziewsky, 2012.

the first time from Paraguay, on dates March 12th and April 3rd, 2012: *Leptocybe invasa* (a galling wasp) and *Rhombacus eucalypti* (a rhomboid mite). Both species were properly identified by specialists from Brazil, Valmir A. Costa and Gilberto J. de Moraes. The specimens were taken from leaves of *Eucalyptus camaldulensis* in a nursery production of the National Forestry Institute located in Laurety, San Lorenzo, Central Department. Further specimens were collected later that year in the departments of Cordillera, San Pedro, Caazapá and Alto Paraná, from leaves of *E. camaldulensis*, but also from leaves of *Eucalyptus grandis* for *Leptocybe invasa*.

Phytosanitary surveillance activities are conducted to better understand the distribution and hosts of these newly emerged pests of *Eucalyptus* in Paraguay.

Photographs of *L. invasa* were taken with a Leika EZ4D binocular microscope with memory card (8 – 30 magnification), and those for *R.*

eucalypti with a Nokia E5.00 5MPX camera adapted to a compound microscope (HUND WETZLAR H500, phase contrast, magnification A4/0.10 100/1.25 Oel).

MATERIAL EXAMINED: *Leptocybe invasa*: PARAGUAY: San Lorenzo: Central Department: Laboratory of Entomology and Acarology, SENAVE/12-march-2012 ex. . *Eucalyptus camaldulensis* (leaves) 2 Females. Benitez Diaz, coll., Costa V.A. det. I.B/CBE Campinas, Br. Alto Parana, Santa Rita, 14/august/2012; ex. *E. grandis* (leaves) 1 female, Britos, M. J. coll.; Caazapa, Maciel, 04-october-2012 ex. *E. camaldulensis* (leaves) 1 female. Colman, M & Garay, R. coll.; San Pedro, Nueva Germania, 10-october-2012 ex. *Eucalyptus* sp (leaves) 1 female, Colman, M & Garay, R. coll, 1 female deposited at Biological Institute of Campinas, SP, Brazil. IB/CBE nº 1814, 5 females Entomological Reference Collection, Laboratory of Entomology and Acarology, Di-

rectorate Laboratories, SENAVE, San Lorenzo, Paraguay, nº 001-005.

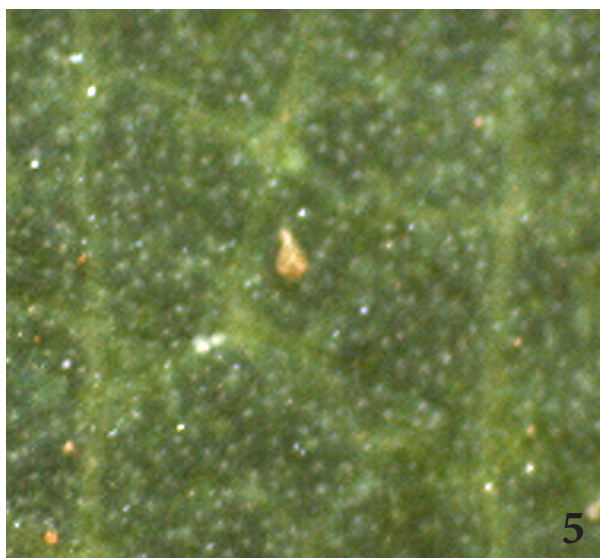
Rhombacus eucalypti: PARAGUAY: San Lorenzo: Central Laboratory of Entomology and Acarology, 03-april-2012 SENAVE ex. *Eucalyptus camaldulensis* (leaves) Benitez Diaz, coll., Moraes, G.det. USP/ESALQ, Piracicaba, Br, 14/august/2012; Cordillera, Caacupé. ex. *Eucalyptus camaldulensis* (leaves) Colman, M. coll.; Caazapá, Maciel, ex. *Eucalyptus camaldulensis*. 04-august-2012, Britos, M. J. coll.; San Pedro, Nueva Germania, 10-april-2012 ex. *Eucalyptus sp.* (Leaves) Colman M. coll.; San Pedro, Cruce Liberacion, 11-october-2012.ex. *Eucalyptus camaldulensis* (leaves) Colman M coll, 3 slides mounted in ESALQ / USP, Piracicaba, Br MZLQ 6066. Two copies mounted at Entomological Reference Collection, Laboratory of Entomology and Acarology, SENAVE, San Lorenzo. DLSVBM/DL nº006-007.

Leptocybe invasa is a dark brown wasp of about 1.2 mm in size (Fig 1-2). It causes the formation of galls in leaf midribs, petioles and thin twigs and can cause leaf drop and drying the apex (Fig. 3-4) (Wilken, C. Berti Filho, 2008). It has been reported from *Eucalyptus*

camaldulensis and from hybrids of *E. grandis* x *E. camaldulensis*, *E. grandis* x *E. globules* and *E.urophylla* x *E.globulus*. The degree of attack depend on the susceptibility of each genetic material (Costa *et al.*, 2008; Thu *et al.*, 2009; Javaregowda& Prabhu, 2010) Damages were observed in both nursery and trial plots (Godziewsky, personal communication).

Recently, a new species, *Megastigmus brasiliensis*, a parasitoid associated with the gall forming wasp, *Leptocybe invasa*, was discovered in *Eucalyptus* plantations in Brazil and will carry further studies to determine its use in a biocontrol program against *L. invasa* (Doganlar *et al.*, 2013).

Regarding *Rhombacus eucalypti*, it has a trapezoidal or rhombic form, the frontal lobe with four anterior spiniform projections above the rear of the back, and epistoma with a long, uniform curved epistoma. (Fig. 5-6). This mite is important because it can be a potential virus transmitter. According to Flechtmann & Santana (2001) it was reported from *Eucalyptus tereticornis*, *E. grandis* and hybrids of *E.urophylla* x *E. grandis*. They are located on both sides of the leaves but with a preference for the underside



Figures 5-6. *Rhombacus eucalypti*. 5) Living individual on a leaf. 6) Mounted specimen (magnification A 100/1.25 oel). Photo: E.A. Benítez, 2012.

and petiole. The new leaves becomes leathery and brittle and may fall prematurely (Moraes & Flechtman, 2008). This is the only eriophyid mite species recorded from *Eucalyptus* in South America. (Queiroz & Flechtmann, 2011).

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