

## SHORT COMMUNICATION

## ***Hemilucilia segmentaria* (Fabricius, 1805) (Diptera: Calliphoridae) as New Biological Vector of Eggs of *Dermatobia hominis* (Linnaeus Jr., 1781) (Diptera: Oestridae) in Reserva Biológica do Tinguá, Rio de Janeiro, Brazil**

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*The aim of this note was to record for the first time the finding of Hemilucilia segmentaria acting as biological vector of Dermatobia hominis, during a study of the diversity of Calliphoridae at Reserva Biológica do Tinguá, Rio de Janeiro, Brazil. The insects were captured using traps baited with chicken viscera, for a period of 28-30 h twice per month. In the period of one year, 1987 insects were collected, 7.5% of which belonged to the H. segmentaria; of these a female was captured in May 2001, carrying a mass of 20 eggs on the left side of its abdomen.*

Key word: *Dermatobia hominis* - *Hemilucilia segmentaria* - biologic vector - Reserva Biológica do Tinguá - Rio de Janeiro - Brazil

The *Dermatobia hominis* distribution spreads from the South of Mexico to the North of Argentina, and covers the whole Brazilian territory, with a particular intensity in the states of Bahia, Rio de Janeiro, São Paulo, Espírito Santo, Goiás, and Minas Gerais (Maia & Guimarães 1985), where it is commonly known as 'berne'. This dipterous features a special characteristic: it captures other insects, attaching a mass of eggs to their victims' abdomen, transforming them into vectors themselves. When this egg-covered insect touches a vertebrate, the latter's body heat stimulates the larvae, which then eclode and penetrate the skin even in the absence of a wound, thus producing a cutaneous furuncular myiasis, also known as dermatobiose. This is a process not restricted to man; it can also strike both domestic and wild animals (James 1947). The vectors of this disease have a considerable economic importance, since animals affected by dermatobiosis produce bad leather, and less meat and milk. It is estimated that the economic losses in Brazil caused by dermatobiosis could reach \$ 250 million/year (Grisi et al. 2002).

The vectoring of *D. hominis* eggs by other insects was first related in 1911 in Guatemala (Morales 1911).

Since then, many other Diptera species have been described as being foretic hosts of *D. hominis* eggs (Leite et al. 1998, Guimarães & Papavero 1999, Rodriguez et al. 1999). Knowing which species of Diptera can work as biological vectors of *D. hominis* in certain regions, as well as studying their ecology and behavior, will help to understand the epidemiology of the dermatobiosis and to develop a way of controlling it.

The aim of this note was to record for the first time the finding of *Hemilucilia segmentaria* acting as biological vector of *D. hominis*. *H. segmentaria* was found carrying eggs of *D. hominis*, during a study of the diversity of Calliphoridae at Reserva Biológica do Tinguá, city of Nova Iguazu, Rio de Janeiro. A female of *H. segmentaria* was captured in May 2001, carrying a mass of 20 eggs attached to left side of its abdomen.

The Reserva Biológica do Tinguá is a region covered by dense ombrofile forest, also called Primary Atlantic Forest. Four traps manufactured according to Ferreira (1978) and modified by Marinho (2000) were set, with chicken viscera insides as bait, spread in an area of approximately 8000 m<sup>2</sup>, only 4 km away from the center of the Tinguá neighborhood, city of Nova Iguazu (S 22°35.133' - 22°35.189', W 43°26.277' - 43°26.386'). In the period between May 2001 and April 2002 Diptera collections twice a month were made, and the traps were left exposed for periods of 28-30 h, at 1.5 m from the ground. The collected insects were sacrificed with ether and preserved in 70%-alcohol. The processes of trial, taxonomic identification, and quantification were held in the Laboratory of Diptera Studies.

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From the 1987 insects captured, 37.5% belonged to the Calliphoridae family, and among these a female *H. segmentaria* specimen was found to be bearing eggs of *D. hominis*. This was the fourth most frequently captured species in this study, representing 7.5% of the collected insects. This parasited species was collected near the creek that crosses the reserve, at 53 m from its administration offices, in May 2001; average temperature and relative air humidity in that month were 23.1°C and 73.3%, respectively. In a study conducted in Pirai, state of Rio de Janeiro, an analysis was made of the influence of climate factors on the incidence of *D. hominis*. It was found that soils which are dry due to low pluviometric precipitation are hostile to the penetration of *D. hominis* larvae which fall down, during the winter, thus resulting in less emerging imagos. The direct consequence is a smaller number of vectors of *D. hominis* eggs in this period (Moya-Borja & Brito 2000).

Little is known about the biology of *H. segmentaria*. However, in a sinantropic study carried out in Rio de Janeiro, the IS value found was -6.7, indicating a preference of this species for forest areas (d'Almeida & Lopes 1983). Analysing the sinantropic indexes of some Calliphoridae species in Curitiba (Ferreira & Barbola 1998) we found that the *H. segmentaria* occurred only in eubiocenosis, original forest area, with an IS value of -100. Although few examples of this species were found in urban, rural and forest areas in Manaus, the *H. segmentaria* was most frequently found in forest areas (Paraluppi & Castellón 1994).

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