

Nota científica

Seasonal abundance of *Chrysomya megacephala* and *C. albiceps* (Diptera: Calliphoridae) in urban areas

Abundancia estacional de *Chrysomya megacephala* y *C. Albiceps* (Diptera: Calliphoridae) en área urbana

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Abstract: A faunistic analysis of sinantropic calliphorids, *Chrysomya megacephala* and *C. albiceps*, was carried out in the urban area of Volta Redonda city, Rio de Janeiro, Brazil from October 2000 to September 2001. Two traps baited with fresh sardine were used. A total of 4,101 specimens of the genus *Chrysomya* were collected. The highest abundance of adults occurred between December 2000 and January 2001. *Chrysomya megacephala* was the most abundant species (57.71%) reaching its highest number in December 2000, followed by *C. albiceps* (41.94%) with a population peak in January 2001. *Chrysomya putoria* was also present in some traps but only 14 individuals were collected. Correlations between the presence of these species and the weather variables indicated that the presence of *C. megacephala* was influenced by rainfall and temperature, while *C. albiceps* was only affected by rainfall.

Key words: Sinantropic calliphorids. Population peak. Weather influence.

Resumen: Un análisis faunístico de las especies de califóridos sinantrópicos, *Chrysomya megacephala* y *C. albiceps* se realizó en el área urbana de la ciudad de Volta Redonda, Rio de Janeiro, Brasil desde octubre de 2000 hasta septiembre de 2001. Se utilizaron dos trampas cebadas con sardina fresca. Un total de 4.101 individuos del género *Chrysomya* fueron recolectados. La mayor abundancia de los adultos se registró entre diciembre de 2000 y enero de 2001. *Chrysomya megacephala* fue la especie más abundante (57,71%) alcanzando el valor más alto en diciembre 2000 seguida por *C. albiceps* (41,94%) con un pico poblacional en enero de 2001. *Chrysomya putoria* también estuvo presente en algunas trampas pero solamente 14 individuos fueron recolectados. Correlaciones entre la presencia de las especies y las variables climáticas indicaron que la presencia de *C. megacephala* está influida por la precipitación y la temperatura, mientras que *C. albiceps* está solamente afectada por la precipitación.

Palabras clave: Califóridos sinantrópicos. Pico poblacional. Influencia climática.

The larvae of calipterid Diptera feed on live tissues, decaying organic matter, and feces being the vertebrate carcasses the main diet for Calliphoridae larvae (Fuller 1934; Hanski 1987). The adult attraction to decaying matter is related to the place for laying eggs and the source of carbohydrates and proteins necessary for sexual maturation and energy supply (Mendes and Linhares 1993). The objective of this manuscript was to describe the abundance changes of adults of *Chrysomya megacephala* (Fabricius, 1974) and *Chrysomya albiceps* (Wiedemann, 1819) under the influence of climatic conditions in Volta Redonda city, State of Rio de Janeiro, Brazil.

Specimens of *C. megacephala* and *C. albiceps* were sampled from the urban area of Volta Redonda city, State of Rio de Janeiro, Brazil. Two traps with 100 g of fresh squeezed sardine meat each were used. The bait traps were placed at two meters from the ground and fifty meters from each other; traps were moistened with distilled water every 24 hours and replaced every 72 hours. Adult flies were collected twice a week for a total of 96 samples. The weather variables rainfall, temperature, and relative humidity were recorded from the weather station situated in Volta Redonda city and these data were used to test their relationship with the abundance of both *C. megacephala* and *C. albiceps*. The influence of the weather parameters as rainfall, temperature and relative humidity on the abundance

of *C. megacephala* and *C. albiceps* was tested using Pearson's correlation analysis (SAEG 9.1, Fundação Arthur Bernardes 2007). A total of 4.101 individuals belonging to the genus *Chrysomya* were collected throughout the sampling period. The most abundant species was *C. megacephala* (57.71%) followed by *C. albiceps* (41.94%) and *Chrysomya putoria* (Wiedemann, 1830) (0.35%). *Chrysomya megacephala* and *C. albiceps* showed the largest abundance between October 2000 and February 2001 representing approximately 90% of the total individuals. This period involved the end of spring and almost the whole summer. During the whole collection period, *C. megacephala* presented a positive correlation with the rainfall ($r = 0.59$, $P = 0.02$) and temperature ($r = 0.54$, $P = 0.03$), while *C. albiceps* was related to rainfall only ($r = 0.55$, $P = 0.03$) (Table 1). The relative humidity was not related to abundance of the species, being practically constant during the collecting period. *Chrysomya megacephala* presented a population peak in December 2000 while *C. albiceps* presented its population peak in January 2001; however, its abundance remains constant between October 2000 and February 2001. *Chrysomya putoria* had few individuals collected, which did not allow an appropriated analysis of this species. The low number of Calliphoridae sampled compared to these reported by Carraro and Milward-de-Azevedo (1999), Gomes *et al.* (1998) and

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Table 1. Abundance correlations between the individuals of *Chrysomya megacephala* and *C. albiceps* and weather parameters.

Weather parameters	<i>C. megacephala</i>		<i>C. albiceps</i>	
	r	p	r	p
Rainfall (mm)	0.59*	0.02	0.55*	0.03
Temperature (°C)	0.54*	0.03	0.39	0.10
Relative humidity (%)	-0.08	0.40	-0.10	0.37

* Significant at $P < 0.05$

Rodrigues-Guimarães *et al.* (2001) may be due to the sampling site which was an urban area. Volta Redonda is an important industrial area where geographical and environmental alterations have occurred due to the implantation of industries from the beginning of 1940s and also due to the systematic combat of vector agents of epidemics by the County Department of Sanitary Surveillance. The selective collection of garbage may have influenced the population. However, other studies are necessary to improve the knowledge on population fluctuation of *C. megacephala* and *C. albiceps* in tropical urban areas.

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