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HONEYBEES AND CATERPILLARS: EPIDEMIOLOGY OF ACCIDENTS INVOLVING THESE ANIMALS IN THE CRICIÚMA REGION, SOUTHERN SANTA CATARINA STATE, BRAZIL

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ABSTRACT: The present study aimed to acquire knowledge regarding some aspects of the epidemiology and injuries provoked by honeybees and caterpillars in southern Santa Catarina State, Brazil. Epidemiological information concerning accidents with both animals was prospectively collected from the System of Injury Notification Information (SINAN) files of the Municipal Health Secretary of the Criciúma region, Brazil. Between 1994 and 2006, 203 cases of accidents were registered, 149 provoked by honeybees (73.39%) and 54 by caterpillars (26.61%). The majority of the victims (200 cases) presented full recovery, two cases presented sequelae after recovery, and only one death was recorded in a case involving honeybee injury. The high frequency of victim recovery suggests that the public health system is efficient and the low frequency of sequelae after recovery also suggests that this system is fast and well developed. However, the low number of allergic people in this population should be considered as well as the severity level of the recorded accidents.

KEY WORDS: epidemiology, honeybees, caterpillars, poisonous animals, accidents, Brazil.

CONFLICTS OF INTEREST: There is no conflict of interest.

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INTRODUCTION

In developing countries, accidents resulting from poisonous animals, including honeybees and caterpillars, are a serious health problem, due to the gravity of the wounds and the sequelae among the victims (12). The stings of honeybee and caterpillars may induce allergic reactions, causing great discomfort or even leading to death. This occurs because many products of these insects are also capable of causing allergic responses in sensitized persons. Poisonous animals are the main agents responsible for human poisoning, principally in Southeast Asia and in the tropical region of the Americas. However, in these regions epidemiological studies related to poisonous animals are generally restricted to snakebites and little information regarding other poisonous animals is available (1, 6, 13).

Epidemiological studies on accidents provoked by venomous animals contribute to the improvement of environmental health in a significant manner, mainly through the discovery of new etiological factors that aid in the accompaniment of trends and evolution of known impacts (2). Through the knowledge about risk factors for new accidents, social, environmental and educational preventive measures can be designed. Epidemiological studies on wounds from poisonous animals have not been recorded in southern Brazilian, especially on honeybee and caterpillar stings. As aforementioned, the aim of the present communication was to acquire knowledge concerning some aspects of the epidemiology and injuries resulting from honeybee and caterpillars, in southern Santa Catarina State, Brazil.

The studied area is located between the southern parallels 25º57’41’’ and 29º23’55’’ and the western meridians 48º19’37’’ and 53º50’00’’ (Figure 1) in the Atlantic Forest. The climate is mesothermic with temperatures ranging from 6 to 36°C and rain distributed throughout the year, with well-defined seasons. The region is composed by 11 municipalities that are predominantly rural and human population is around 369,000 inhabitants. The epidemiological information about accidents with honeybees and caterpillars, from 1994 to 2006, was prospectively collected from SINAN files of the Municipal Health Secretary of the Criciúma region, Brazil. Data included age and gender of the victims, case evolution, activity type that was being carried out when the accident happened and general frequency of accidents per month.

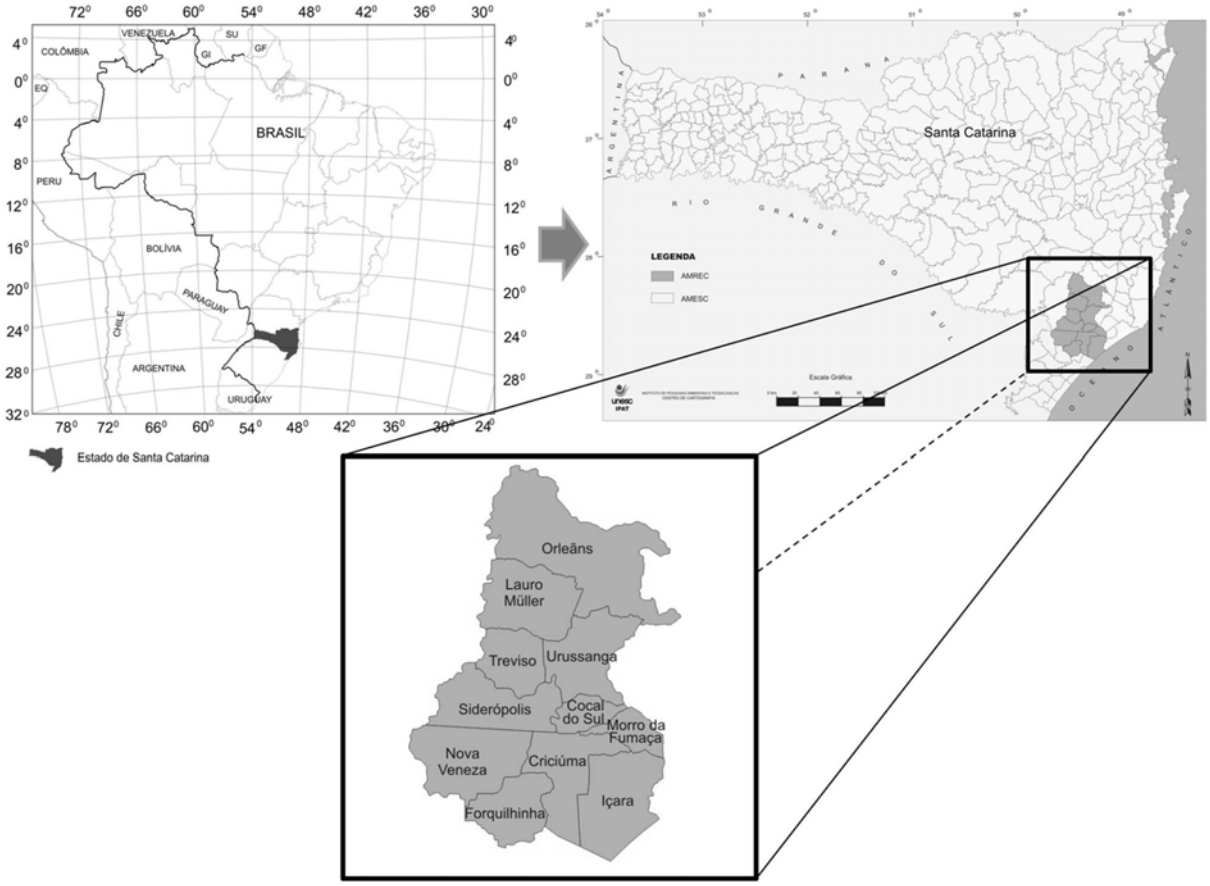

Figure 1. Studied area of honeybee and caterpillar stings. Map of Brazil (above the left); map of Santa Catarina State (above the right), and the map of the 11 municipalities.

All the 203 cases of accidents involving both animals, reported between 1994 and 2006 in the SINAN files, were enrolled. We found 149 (73.39%) recorded cases involving honeybees, while 54 were provoked by caterpillars (26.61%). Referring to honeybees, the accidents were more frequent in men (63.33%) than in women. However, among caterpillar victims both sexes were equally affected. Figure 2 presents the frequency per month of reported stings by honeybees and caterpillars. Most sting cases were recorded in hottest months, from January to May. This seasonality factor agrees with several reports in the literature for many poisonous animals (12). The predominance of accidents in these months also occurs in southern, west central and central regions of the country (8, 10). Preventive action against poisonous bites should be conducted throughout the year and intensified during the peak incidence months.

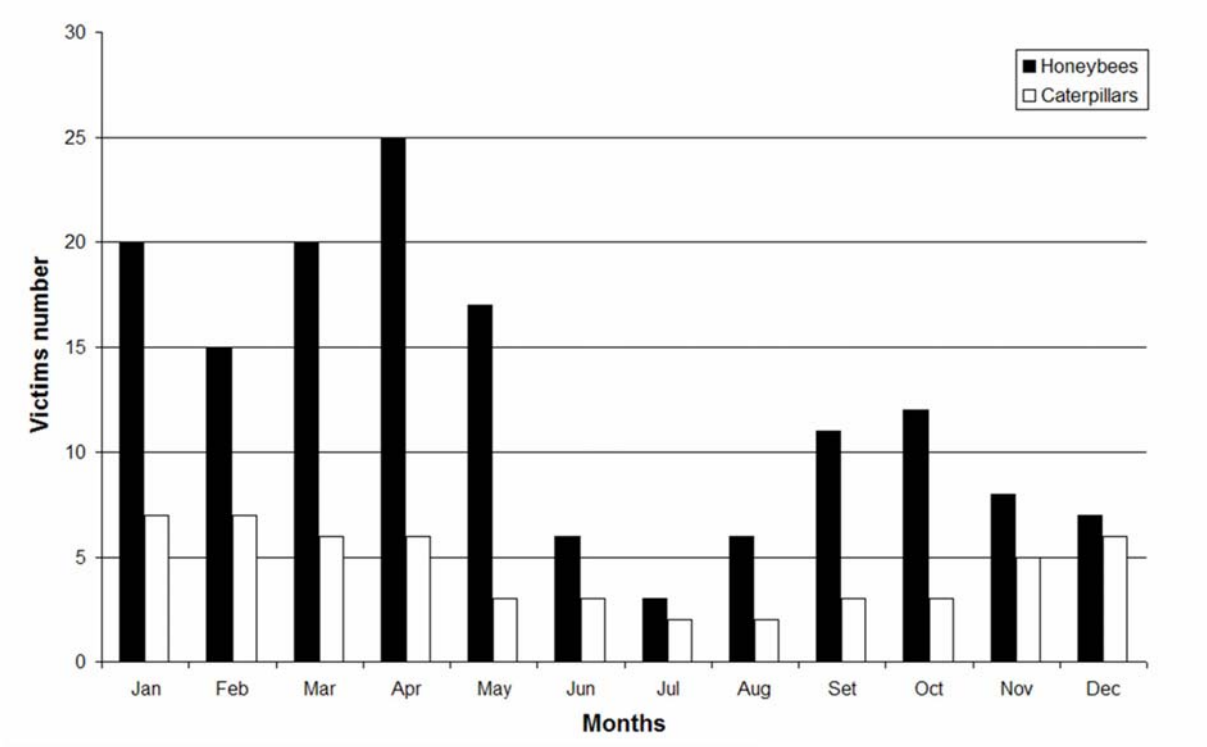

Figure 2. Frequency per month of stings by honeybees and caterpillars, recorded by the Municipal Health Secretary in the Criciúma region, Brazil, between 1994 and 2006.

Reported cases for caterpillars were relatively less frequent than those registered for honeybees. This may happens because accidents involving caterpillars depend on direct contact between the victim and the animal, and given that the latter moves very slowly, accidents are less frequent. However, its slowness does not make injuries less serious, since the contact with caterpillar toxins produces hemorrhagic syndrome and even death, due to renal complications and cerebral hemorrhage (9).

One of the reasons that explains the greater frequency of honeybees implied in accidents is that the studied region produces annually 15 tons of honey (7). Beekeeping as a commercial activity began in 1839, in southern Brazil, in the states of Rio Grande do Sul and Santa Catarina (7) and has grown into the modern industry presently established. The “africanization” of bees in South America started in São Paulo State, Brazil, in 1956, when researchers attempted to develop a more appropriate honeybee than the races that had been imported from Europe. Later, some African bee swarms escaped into the Brazilian countryside where their queens hybridized with the more docile European honeybees. The offspring of these bees

defended their nests more vigorously, swarmed more often, and were generally better suited for survival in the tropics than European types. Afterwards, Africanized honeybees spread and reached Central and North America (3, 5).

Bee, wasp and ant stings constitute a serious problem due to their high incidence and ability to cause fatal anaphylactic reactions. However, there were no register of accidents provoked by wasps and ants in southern Santa Catarina state. Anaphylaxis occurs in male victims about twice as often as it does in female ones, but this finding probably represents a difference in exposure rate rather than a true gender variation (4, 11).

The majority of the victims (200 cases) presented full recovery and two cases presented recovery with sequelae. Only one death was recorded, from a case involving a honeybee injury. Possibly, it results from the fact that honeybees attack by stinging in groups and a higher concentration of poison may cause fatal anaphylactic reactions. The high frequency of victim recovery suggests that the public health system is efficient and the low frequency of sequelae also indicates that the system is fast and well developed. On the other hand, the possibility that there are just few allergic persons among this specific population and that the registered cases were not so severe should be considerate.

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