

TERMITICIDAL ACTIVITY OF CULTURE filtrates FROM FOUR *Streptomyces* ISOLATES

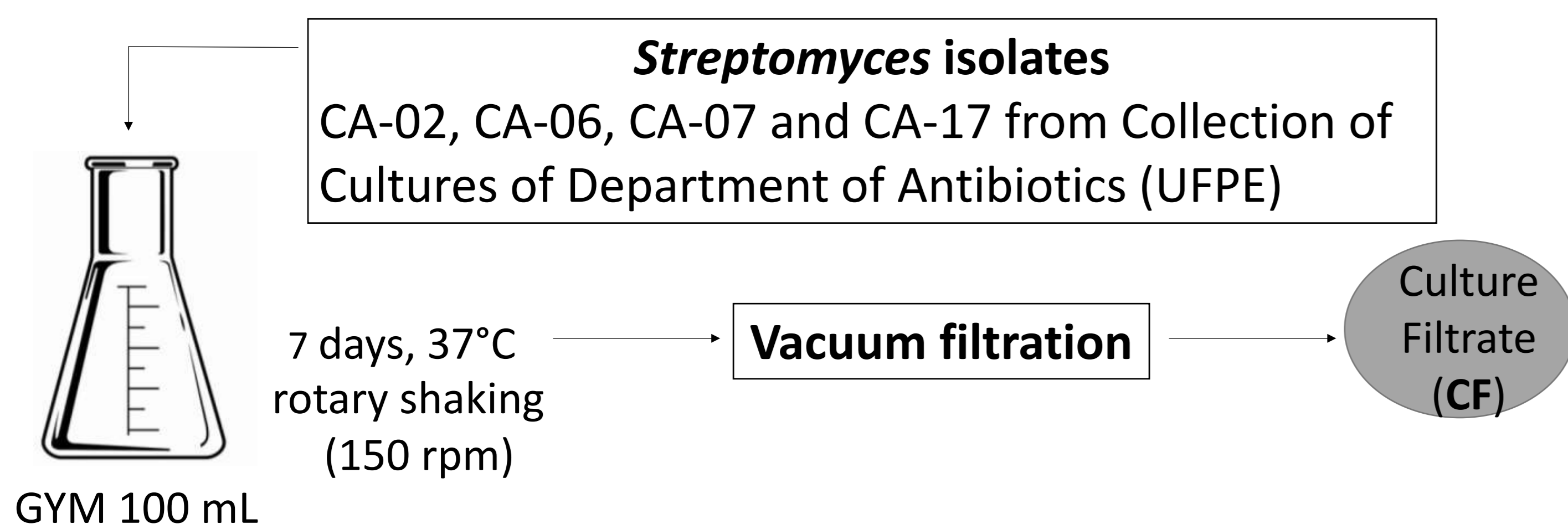
Priscilla Andrade de Moura, Thâmarah de Albuquerque Lima, Luana Cassandra Breitenbach Barroso Coelho, Maria das Graças Carneiro-da-Cunha, Maria Tereza dos Santos Correia, Gláucia Manoela de Souza Lima, Janete Magali de Araújo, Thiago Henrique Napoleão, Márcia Vanusa da Silva, **Patrícia Maria Guedes Paiva**

INTRODUCTION

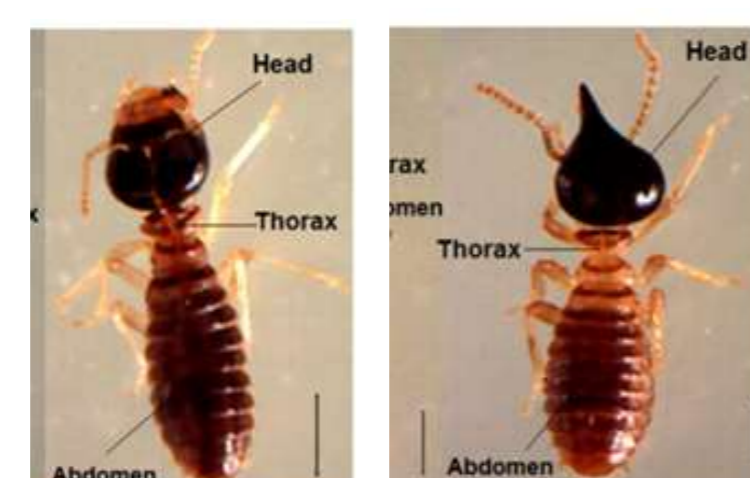
The Caatinga is an exclusively Brazilian biome that presents semi-aride climate. The survival of species in the Caatinga requires adaptive metabolism that includes the biosynthesis of specific secondary metabolites. The genus *Streptomyces* is an important source of compounds with antimicrobial, antioxidant and insecticide activities. Termites are eusocial insects that act as decomposers of the environment promoting the recycling of lignocellulosic resources but some species, including *Nasutitermes corniger*, are considered urban pests. The use of chemical insecticides is the main strategy used to control pest insects, however, the indiscriminate and continuous use of pesticides has led to environmental contamination and emergence of resistant populations. In this sense, studies have been performed aiming to identify new compounds for use in termite control strategies. The objective of this work was to evaluate the termiticidal activity on *N. corniger* of filtrates obtained from four cultures of *Streptomyces* spp. isolated from the rhizosphere soil of *Caesalpinia pyramidalis*, a Caatinga plant popularly known as *catingueira* (CA).

METHODS

CULTURE FILTRATES



TERMITICIDAL BIOASSAY



16 workers 4 soldiers

LC₅₀: The concentration required to kill 50% of termites after 2 days was calculated by probit analysis with a reliability interval of 95%.

7 days, 25°C

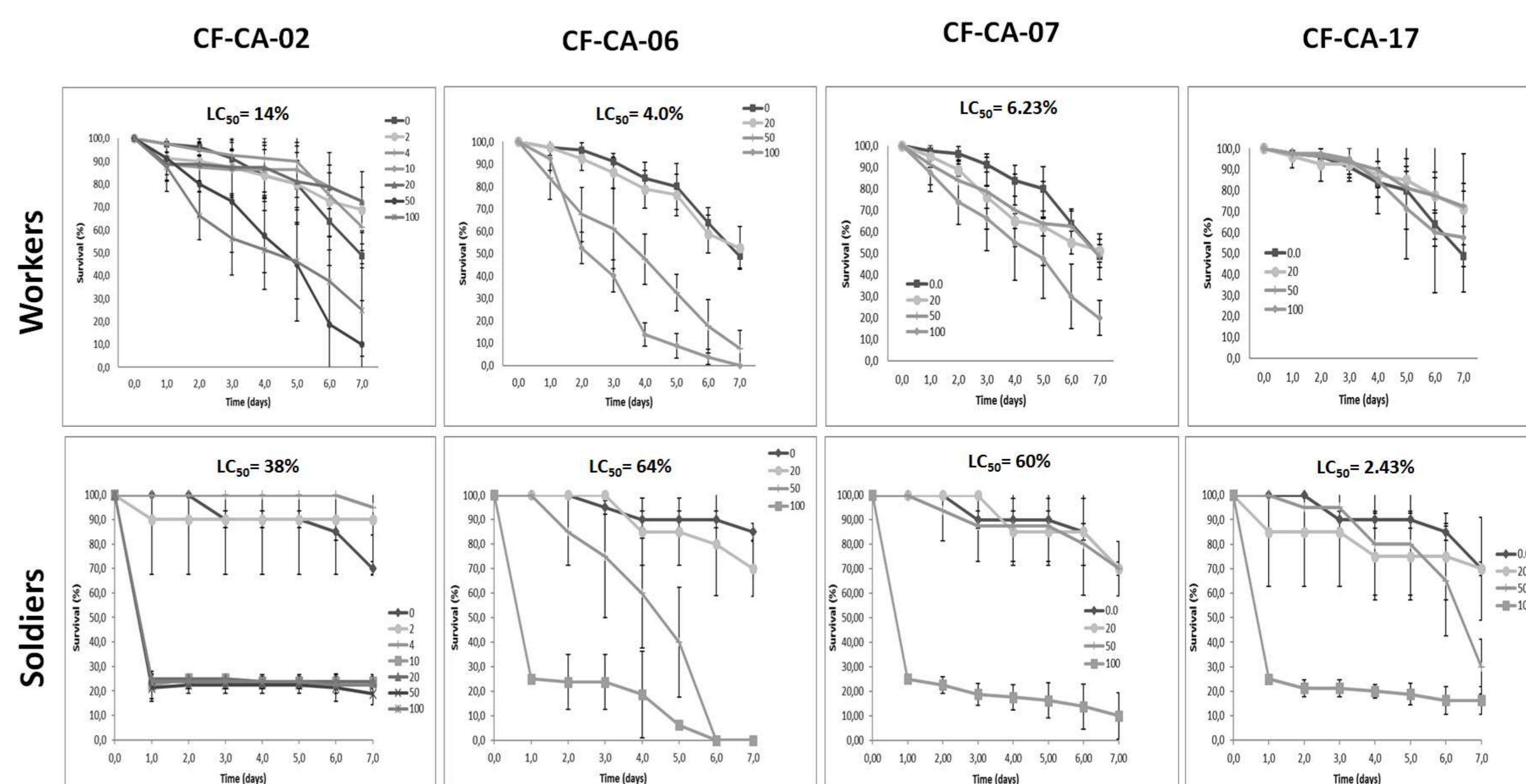
Control diet: Cellulose matrix (Avicel 20%)

Artificial diet: Cellulose matrix + CF-CA-02, CF-CA-06, CF-CA-07 or CF-CA-17

RESULTS AND DISCUSSION

Figure 1 shows the effect of CF on *N. corniger* workers and soldier. CF-CA-02, CF-CA-06 and CF-CA-07 presented high toxicity for workers, while CF-CA-17 did not promote mortality of insects. CF of all isolates were toxic to soldiers. The comparison of the termiticidal efficiency of the culture filtrates reveals that the castes showed different sensitivity to them being the workers more sensitive than the soldiers, except for CF-CA-17. The fact that CF-CA-17 presented the highest termiticide efficiency on soldiers and did not promote worker mortality suggests that it has a profile of metabolites distinct from other strains, being rich in those that act specifically on soldiers.

Figure 1: Termiticidal effect of artificial diet with CF-CA-02, CF-CA-06, CF-CA-07 and CF-CA-17 on *N. corniger* workers and soldiers. Control diet was the negative control. Each point represents the mean \pm SD of five experiments.



CONCLUSION

Streptomyces isolates from rhizosphere of Caatinga plant are sources of compounds with termiticidal action with distinct toxicity for *N. corniger* workers and soldiers. The study proceeds with the determination of the chemical composition of the culture filtrates and investigation of the termiticidal mechanism of action.

Supported by: