

IN VITRO SCHISTOSOMICIDAL ACTIVITY OF TRITERPENOIDS FROM THE AFRICAN PLANT *MOMORDICA BALSAMINA*

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INTRODUCTION

Schistosomiasis, also known as bilharzia, is a chronic liver and intestinal parasitic disease caused by trematode worms of the genus *Schistosoma*. Among the five major species of human schistosomes, *Schistosoma mansoni* is the most prevalent, being endemic in 54 countries. Praziquantel is the only available drug against all forms of schistosomiasis. The development of praziquantel resistance is a great concern and new drugs are urgently needed [1].

***Momordica balsamina* L.** (Cucurbitaceae), commonly known as African pumpkin, is a vegetable widespread in tropical and subtropical regions that has been used as food, mainly in sub-Saharan Africa. It has also been widely used in traditional medicine in Africa to treat various disease symptoms, mostly diabetes and malaria.



Figure 1. *Momordica balsamina*.

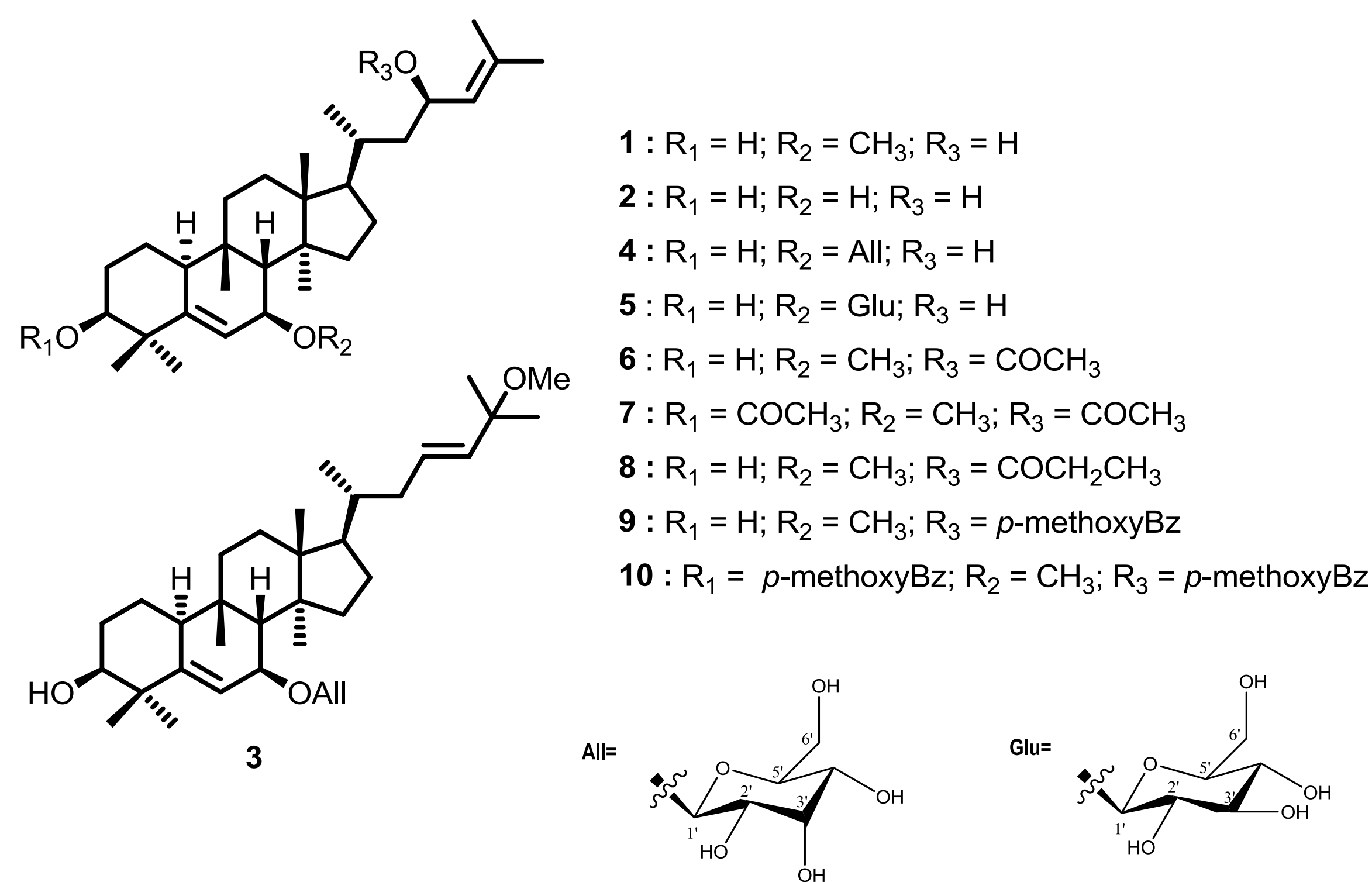


Figure 3. Chemical structures of the isolated compounds (1-5)

AIM OF THE STUDY

In previous work, bioassay-guided fractionation of the methanol extract of the aerial parts of *M. balsamina* led to the isolation of several cucurbitane-type triterpenoids. Most of the isolated compounds as well their acylated derivatives displayed antimalarial activity [2, 3].

Continuing our search for antiparasitic compounds, the **aim of this work** was to evaluate the *in vitro* schistosomicidal activity of several triterpenoids isolated from *M. balsamina* against *Schistosoma mansoni* adult worms [4, 5]. Praziquantel was used as positive control.

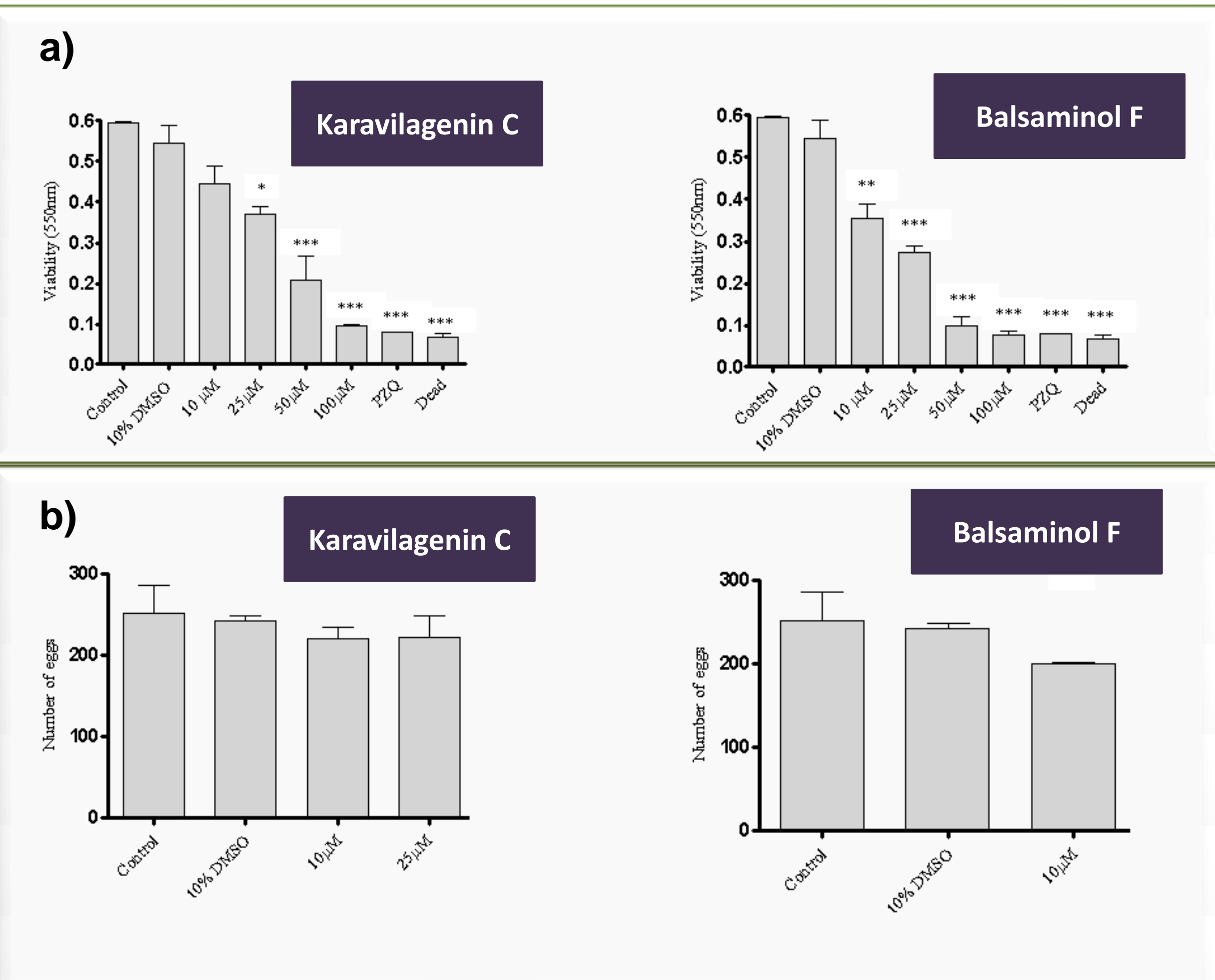
RESULTS AND DISCUSSION

For the *in vitro* test with *S. mansoni*, compounds 1-10 were dissolved in 10% DMSO and used in concentrations ranging between 5 to 100 μ M, which were added to the medium containing one adult pair. Parasites were evaluated for their general condition: motor activity, alterations in the tegument, mortality rate, and egg production and development.

A remarkable schistosomicidal activity was observed for **karavilagenin C** and **balsaminol F** at 50 and 100 μ M, which caused the death of all *S. mansoni* adult worms after 24 h of incubation. Both compounds, at 10-50 μ M, induced significant reductions in the motor activity of the worms (data no shown) and significantly decreased the egg production (Fig. 3). Furthermore, they were able (at 10-100 μ M) to separate the adult worm pairs into male and female after 24 h (data no shown).

CONCLUSION

Our results indicate that **karavilagenin C** and **balsaminol F** possesses *in vitro* schistosomicidal activity against *S. Mansoni* adult worms. Then, cucurbitane derivatives might be used, in the future, as lead compounds for the development of new schistosomicidal agents.



REFERENCES

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