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### **Biological activity of poriferans extracts from the Colombian Caribbean on *Meloidogyne incognita* and *Spodoptera frugiperda* IPLB-SF-21 cell line**

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The phylum porifera have numerous compounds with high biological and chemical interest; this marine biodiversity offers a great opportunity to agribusiness, pharmacology, ecology, biotechnology and agrochemical, the latter being a sector little explored in the search for new compounds from marine natural products. In the agribusiness sector *Spodoptera frugiperda* and *Meloidogyne Incognita* are responsible for noteworthy losses to important crops world-wide. Nowadays is a lot important to reduce the use of chemical pesticides and introduce sustainable systems; thus, the evaluation of molecules from different natural sources as marine animals could be an interesting alternative to apply in crop protection. In order to test the cytotoxic and nematotoxic activity, sponge extracts from *Suberites aurantiacus* and *Desmapsamma anchorata* were prepared using extraction buffers, followed by centrifugation, precipitation, dialysis and freeze dried. For *in vitro* assays, samples were challenged against larvae of *Meloidogyne* spp, and counted on optical microscope after incubation. The *in vitro* cytotoxic activity was performed using the SF-21 cell line and the cell viability was calculated by trypan blue method. Transmission electron microscopy (TEM) was performed to observe the cell behavior after assays. Both dialysed extracts and the sponges aqueous crude extracts exhibited total paralysis of the nematodes (100%), after 48 hours exposure. The recovery assay performed transferring the paralyzed nematodes to fresh dH<sub>2</sub>O for further 12 hours shows the nematodes

remained paralyzed indicating the nematocide effect of *S. aurantiacus* and *D. anchorata* with 97% and 55% respectively. A lower cytotoxic effect on SF-21 insect cell lines was observed in all assessments after 24 and 48 hours exposure. However, at 72 hours by using 100X light microscopy and TEM significant cell changes such as generalized stress, deformation and cellular lyses were observed in comparison with the control. The bioprospecting of molecules from marine animals to control this kind of pest is an important approach in the search for biotechnological solutions to this problem.

**Keywords:** Porifera, Bioprospecting, Cytotoxic, Nematotoxic, SF21.