

## **TOXIC ACTION OF *Acmella oleracea* EXTRACT ON THE *Amblyomma cajennense* (ACARI: IXODIDAE) MALE REPRODUCTIVE SYSTEM**

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The present study evaluated through morphohistological and histochemical techniques the effects of different concentrations of crude ethanolic extract of *A. oleracea* (EEAO) (Jambu) on the male reproductive system of *Amblyomma cajennense* s.s. ticks. The toxicity of this natural chemical was established, signaling the promising potential of the compound as a strategy to control ectoparasites in the near future. For the experiment, 100 males fed on host rabbits with homogeneous weight ( $p > 0.05$ ) were used. The ticks were divided into five groups (10 animals each): Control 1 – exposed to distilled water; Control 2 – exposed to ethanol 50% and DMSO 1%; Treatment 1 to 3 – exposed to the concentrations of 6.2, 12.5 and 25 mg/mL of the EEAO, respectively, diluted in ethanol 50% and DMSO 1%, with exposure by immersion. After exposure, the males were dissected for the removal of the reproductive system and subjected to routine histological analysis with HE staining and histochemical techniques (PAS for the detection of neutral polysaccharides and Bromophenol blue to detect total proteins). The exposed individuals showed alterations in the glandular complex cells; however, the testes remained intact. The secretory cells of the multilobulated accessory glands presented intense cytoplasmic vacuolation. Additionally, the synthesis and secretion were reduced in the secretion granules, mainly concerning the polysaccharides, glyco- and lipoprotein elements, substances that will constitute the seminal fluid and enable the capacitation of spermatozoa in the female genital tract and also necessary for the formation of the spermatophore, which will encapsulate the mature spermatids. The alterations were dose-dependent, i.e., more intense and severe as the concentration of the product increased. This experiment confirmed the cytotoxic potential of *A. oleracea* ethanolic extract in the concentrations of 6.2, 12.5 and 25 mg/mL on the reproductive system of *A. cajennense* s.s. male ticks.

**Keywords:** male reproductive system, chemical control, star tick, cytotoxicity, natural product.

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