



Insecticidal potential of protein fractions from *Clitoria fairchildiana* seeds

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Clitoria fairchildiana, is a native leguminous often used in urban and rural afforestation programs. In the literature, there are no reports on insect predation for the seeds from this species; the rare reports of pest insects are defoliating lepidoptera, as *Urbanus acawoios*, *Hyperchiria incisa* and the *Euphalerus clitorae*. For this reason, we believe that the seeds from this species may contain an unexplored defensive arsenal with insecticidal potential and we intend to investigate the protein side of such defenses. The strategy used in this work was fractionate the cotyledon proteins, according to their solubility: albumins, globulins, kaffirins, glutelins, cross-linked kaffirins and cross-linked glutelins were obtained. All protein fractions were quantified by BCA assay and visualized by SDS-PAGE. In order to evaluate their insecticidal potential, the insect models *Callosobruchus maculatus* and *Tribolium castaneum* were employed. The cotyledonary flour and protein fractions were incorporated into the diet of both insects in different concentrations (0.05%, 0.1%, 0.2%, 0.3%, 0.4% and 0.5% - for *C. maculatus* and 0.5% for *T. castaneum*). Surviving larvae were counted and weighed and all experiments were performed in triplicate. All protein fractions exhibited deleterious effects on the development of *C. maculatus* larvae, however, albumins and kaffirins fractions were the most toxic, since no larva survived above the 0.1% concentration ($p < 0.05$). Incorporation of cotyledonary flour in the diet of *T. castaneum* caused a significant delay in larval development. Obtained data lead us towards the future characterization of proteins present in the toxic fractions, specially of the kaffirins, as this is the first report of the presence of this protein class in legume seeds. Albumin and kaffirins were the most toxic fractions for *C. maculatus*, whereas for *T. castaneum*, the glutelins presented the highest toxicity. The presence of kaffirin-like protein in a legume seed is a novelty finding.

Key words: *Clitoria fairchildiana*, Defensive proteins, bioinseticida, *Callosobruchus maculatus*, *Tribolium castaneum*.

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