

TITLE: BIODESTOXIFICATION OF JACKBEAN (*CANAVALLIA ENSIFORMIS*) THROUGH SOLID-STATE FERMENTATION.

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Jackbean (*Canavalia ensiformis*) is a leguminous widely cultivated in Brazil, which, under ideal management conditions, produces 2.5 tons per hectare of dry seed mass. Its seeds have interesting nutritional values. However, their application is basically focused on green fertilization. This is because *C. esiformis* has antinutritional factors: Concanavalin A lectin, trypsin inhibitors and ureases. This leguminous also has canavanine, which plays an important role in the defense mechanism of the plant, since it is a toxic amino acid for bacteria and insects. In this context, the solid-state fermentation (SSF) appears as an alternative in the use and valuation of these seeds through the elimination of these antinutritional compounds. The objective of this work was to carry out a SSF with a microorganism peptidase producer, since its antinutritional compounds are of protein nature, for the detoxification of the jackbean, aiming their future application in animal feed. The microorganism used was the filamentous fungus *Aspergillus awamori*, which was able to grow in the jackbean and in eight days reached the maximum peptidase production of 40.89 U/g⁻¹. The lectin Concanavalin A was totally reduced after 3 days of culture. Trypsin inhibitors remained constant during the fermentation process and canavanine was reduced 85.2% over 3 days. Subsequent to the cultivation, bromatological and amino acid profile analysis of the control and fermented samples were carried out to verify the application of this raw material. Crude protein was reduced from 43.28% to 41.27%, keeping jackbean as a rich protein source. Regarding amino acid content, SSF did not significantly alter the amino acid profile of jackbean. In this work it was possible to develop a low-cost biotechnological process of detoxification of the jackbean for the production of an ingredient to compose the formulation of animal feed.

Keywords: Solid-state fermentation. Detoxification. *Canavalia ensiformis*. Concanavalin A. Canavanine. Trypsin inhibitors.

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