

CURCIN FROM *JATROPHA CURCAS* SEED AS A POTENTIAL ANTHELMINTHIC

Jummai, A.T¹ and Okoli, B.J²

¹National Biotechnology Development Agency, Federal Ministry of Science and Technology, Abuja, Nigeria.

²Department of Chemistry, Bingham University, Karu, Nassarawa State, Nigeria.

E-mail: okolibj@binghamuni.edu.ng

ABSTRACT

The study was done with the aim to evaluate the anthelmintic activity of curcin from *Jatropha curcas* seed using adult earthworm *Pheritima posthuma* against Niclosamide (5 mg/mL) as standard references and normal saline as control. The activities of the possible crude curcin was determined on the tested parasites in this study so as to verify if the *Jatropha curcas* seed would be a potential sources of useful anthelmintic drugs by monitoring the time to achieve paralysis of the worms was determined. In the acute toxicity test, toxic signs were observed at 300mg/kg. However, the *Pheritima posthuma* displayed physical changes with LD₅₀ of 800mg/kg per body weight. The toxicity of curcin in *Pheritima posthuma* is high; however, caution should be exercised in its use especially at high doses.

Keywords: *Jatropha curcas*, Immounotoxins, Crude Curcin, Niclosamide, *Pheretima posthuma*, and Anthelmintic Activity.

INTRODUCTION

Distributed in many tropical and subtropical countries, *Jatropha curcas* L belongs to the family Euphorbiaceae. All parts of *Jatropha curcas* are considered toxic in particular the seeds; its toxicity has been attributed to a protein component. This toxic protein was isolated from the seeds of *Jatropha curcas* by Felke (1914), and was designated as "curcin". He proposed that the curcin was a kind of toxalbumin (Felke, 1914). Many plants contain proteins that are capable of inactivating ribosome and accordingly are called ribosome-inactivating protein (RIP). RIP are usually divided in 2 subgroups on the basis of their structure and functions: Type I RIP consisting of a single polypeptide chain with Mr 28 000-35 000 and alkaline isoelectric points (pI) of pH 8-10 with or without carbohydrates; type II RIP consisting of a catalytically active A chain linked to a cell-binding B chain. The A chain is the functional equivalent of a Type I RIP, and the B chain is a lectin (Barbieri *et al.*, 1993). Barbieri (1993)

...For Full Article, Contact the Author @:
okolibj@binghamuni.edu.ng