

***Jatropha curcas* Poisoning in Children in Western Kenya – A Case Report**N.A. MUKUNGU^{1*}, C.K. MAITAI¹, K.A. SINEI¹, P.C. MUTAI¹, D.S.B. ONGARORA² AND E.W. KARUMI¹.¹Department of Pharmacology and Pharmacognosy, School of Pharmacy, College of Health Sciences, University of Nairobi, P.O. Box 19676-00202, Nairobi, Kenya.²Department of Pharmaceutical Chemistry, School of Pharmacy, College of Health Sciences, University of Nairobi, P.O. Box 19676-00202, Nairobi, Kenya.**ABSTRACT**

A case of *Jatropha* poisoning in children in Kakamega Division, Kenya is reported. A literature review showed that this plant has caused poisoning in children in other countries. The circumstances leading to poisoning, time to onset of symptoms and the clinical manifestation of poisoning in all cases reported in literature as well as in the present case report show a striking similarity. In all cases, gastrointestinal disturbance (vomiting, abdominal pain, nausea and diarrhoea) were prominent and these were attributed to curcin a toxalbumin present in the seeds of *Jatropha curcas*. Dehydration and electrolyte imbalance is a consequence of vomiting and diarrhoea. Supportive treatment leads to full recovery, usually within 24 hours.

Key words: *Jatropha curcas*, poisoning, plant poisoning, curcin**INTRODUCTION**

Jatropha curcas also referred to as physic nut is a flowering plant in the Euphorbiaceae family. The plant has its origin in native America and Mexico but has been naturalised in the tropics and subtropics [1, 2]. In Kenya the plant is grown as a hedge and for marking graves. Between 2004 and 2007, the plant was promoted among small scale farmers as a source of income through biodiesel production. The seeds contain 27-40% oil that can be processed to produce biodiesel. However, the project was not economically viable and was subsequently discontinued [3].

A literature review showed that this plant has caused poisoning in children in many parts of the world but no case of *Jatropha* poisoning in adults has been reported. Singh *et al.* reported a case of 4 children in India aged between 5 and 8 years brought to hospital with complaints of repeated vomiting and abdominal pain [4]. The lag period before onset of symptoms was estimated to be 1-2 hours and the symptoms subsided 6-8 hours later. The case was subsequently diagnosed as *Jatropha* poisoning.

In 2007, Deepak *et al.* reported a case of *Jatropha* poisoning in children in Mauritius [5]. In another report, Pankaj *et al.* documented a case of 4 children in Chhattisgarh, India, poisoned after consuming *Jatropha* seeds [6]. Within a few hours of ingesting the seeds, the children started vomiting. Kosan and Nahrel have also reported a case of *Jatropha* poisoning in children in India [7]. In February 2015, a number of children were poisoned with unknown plant seeds in Kakamega Division, Kenya. The plant implicated was subsequently collected and identified as *Jatropha curcas*. A voucher specimen is deposited in the University of Nairobi herbarium. We report here details of this case involving 18 children.

CASE REPORT

Poisoning from an unknown plant, which was subsequently identified as *Jatropha curcas* was reported in Mwikunda village, Mumias, in Kakamega, Kenya, on 2nd February 2015. One child is said to have tasted a fruit from the tree growing on a grave and found it sweet. He took several fruits and distributed them to other children in the village. The children ate the

*Author to whom correspondence may be addressed. Email: nmukungu@uonbi.ac.ke

fruits and seeds. After a few hours the children complained of tiredness, diarrhoea and vomiting. Eighteen [18] children aged between 2 and 14 years were admitted at St. Mary Hospital, Mumias after eating these fruits and seeds. All the children were treated symptomatically and discharged from hospital at varying time intervals within a period of 24 hours. Fortunately, no fatality was recorded.

DISCUSSION

Plant poisoning in humans is rare because people do not consume plant material (fruits, seeds, roots and leaves) unless it is known to be safe and palatable. However, children are susceptible since they will experiment with any plant material out of curiosity especially if the materials have a bright colour and sweet taste. *Jatropha* seeds satisfy this requirement [8, 9] and the poisoned children in Kakamega were willing to eat the seeds. The active principle in *Jatropha curcas* is a toxalbumin, called curcin [10]. Toxalbumins, also referred to as protein phytotoxins, are present in many other plants such as *Ricinus communis* and *Abrus precatorius* and are known to be extremely toxic. Gastrointestinal disturbances (vomiting, abdominal pain, nausea and diarrhoea) are prominent in *Jatropha curcas* poisoning. Hypovolemic shock is also common. Fatality is rare and generally symptoms subside within 24 hours. Although cyanide and rotenone are present in *Jatropha* seeds, these did not seem to have contributed significantly to the symptoms. Symptomatic and supportive therapy is the mainstay of management of severe *Jatropha curcas* poisoning.

CONCLUSION

Poisoning with *Jatropha curcas* is well documented worldwide. The fact that more cases continue to be reported especially among children points to ready accessibility of the plant and lack of information on its toxicity potential. There is need for continuing education through mass media and village meetings about common toxic plants. Communities should also be discouraged from cultivating toxic plants within the homesteads. Finally, healthcare professionals

need to be aware of potentially toxic plants growing around their areas of work so that they can effectively manage emergency cases.

ACKNOWLEDGEMENTS

We acknowledge Mr. P. Mutiso of the University of Nairobi Herbarium for identifying the plant. We are also grateful to Mr. M. Anzala (whose seven children were affected in this poisoning incident) for allowing us to collect the plant from his compound. We thank Mr. M. Lumasia for collecting and transporting the plant to the School of Pharmacy, College of Health Sciences, University of Nairobi.

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