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Letter to the Editor

Suicide Attempt by Ingestion of Rotenone-Containing Plant Extracts in French Polynesia: A Case Report

To the Editor:

Several species of the Fabaceae family contain ichthyotoxic rotenoids, which are traditionally used for fishing in numerous tropical regions. These plants are collected, crushed up, and spread into small rivers to sedate fish downstream within 10 to 20 minutes. The stunned fish can then be easily harvested by the fishermen and safely eaten.¹ Rotenone is also toxic to arthropods, and as a consequence, was widely used as an insecticide in the early 20th century.¹ Human ingestion of rotenone and rotenoids at low concentration is relatively nontoxic, causing mild gastrointestinal symptoms, whereas high concentrations can result in neurotoxicity observed as seizures, coma, and respiratory failure.² We report the case of a man who attempted to commit suicide by drinking an extract of rotenone-containing plants. To our knowledge, this is the first reported case of poisoning with this plant in scientific literature from French Polynesia. (Figure.)

On the Nuku Hiva Island (one of the Marquesas Islands in Northern French Polynesia), a 63-year-old man with no significant past medical history attempted to commit suicide by ingesting an extract made from 10 leaves of a plant identified as *Derris trifoliata* (family Fabaceae), which was confirmed by a digital picture sent to the regional poison control center. Twelve hours later, he again drank a similar dose of the extract. Two hours following this second ingestion, the patient presented to the emergency department with generalized seizure activity and a Glasgow Coma Scale of 3. No acute intracranial abnormalities were noted on the computerized tomography (CT) scan of the brain. Liver function tests were carried out and results were consistent with mild hepatotoxicity, with enzyme levels of 92 UI/L for aspartate aminotransferase (AST), and 108 UI/L for alanine aminotransferase (ALT). The patient was stabilized, orally intubated, ventilated, treated with benzodiazepines, and transferred by helicopter to the closest tertiary care unit in Papeete Hospital. To prevent further liver toxicity, a 24-hour treatment regimen of N-acetylcysteine (intravenous injection of 100 mg/kg) was administered for hepatic protection. On day 2, the



Figure. *Derris trifoliata*. Developing seedpods. Photograph by: Vengolis. Creative Commons Attribution-Share Alike 3.0.

liver function tests improved, there were no further neurological symptoms, and the patient began to breathe spontaneously.

In medical literature, several self-poisonings have been reported after ingestion of concentrated forms of rotenone used commercially as an insecticide.²⁻⁴ We are aware of only 2 published cases in China and French Guiana describing ingestion of rotenone-containing plants.^{1,5} The typical clinical presentation is characterized by gastrointestinal symptoms (abdominal pain, vomiting, diarrhea), followed by dizziness, loss of consciousness, and respiratory failure. Some patients also experience liver toxicity associated with metabolic acidosis. Although our patient suffered from mild hepatotoxicity, there were no sign of metabolic acidosis. In our report, the patient showed classic signs of rotenone poisoning, which included coma, respiratory failure, and hepatotoxicity after ingesting an extract of *Derris trifoliata*. Self-limited seizure activity was unique to our patient. When patients survive this poisoning, they typically recover quickly.¹ The therapeutic protocols are primarily based on symptomatic treatment including endotracheal intubation and ventilatory support. As a conclusion, travelers and health care providers in French Polynesia, as well as the South Pacific Islands should be aware of this plant and its potential toxicity.

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