

Toxic Food Plants from West Tropical Africa

Felix Nwafor

University of Nigeria, Nigeria

Abstract

Food insecurity is one of the major problems facing developing countries in West Africa, partly as a result of high demographic growth and poverty or limited choice of diet. The inhabitants depend on indigenous plant resources in order to meet their dietary requirements for a healthy life and active living. However, some of these food plants contain toxic substances which could be detrimental to humans and pets, most of which are secondary metabolites, proteins, phytates, oxalates and lectins. These toxins are stored at different parts of the plant and at certain growth stages. For example, leaves of *Telfairia occidentalis* and *Vernonia amygdalina* which are common vegetables in West Africa are non-toxic but their roots are. Unripe fruits and leaves of *Solanum lycopersicum* and *Solanum nigrum* contain toxic glycoalkaloids but their ripe fruits are cooked and eaten in most parts of the region. Degree of toxicity of these active compounds could be minimal or extreme; from discomforting symptoms to pathology or mortality. Oxalates in common food tubers such as *Colocasia* spp. trigger the release of histamine when consumed unprocessed or poorly processed, causing irritation, pain and swelling of the gullet and equally affecting the airway passage, and induce a choking sensation. They bind to calcium and some other minerals, making them unavailable to the body system. Symptoms of eating food substances high in oxalates include impaired blood clotting, diarrhea, vomiting, coma and convulsion. Diosbulbin B and D found in edible species of *Dioscorea* could cause cell damage in human liver and inhibit the function of metabolic enzymes. Linamarin in *Manihot* species release cyanides that inhibit the action of cytochrome oxidase and by so doing disrupts the cell from using oxygen. Symptoms include abdominal pain, lethargy, vomiting, sweating and at high doses could lead to death. It is established that ingesting 4-8 seeds of *Ricinus communis*, a commonly consumed spice in Nigeria could cause vomiting and diarrhea in adult, and death in children as a result of ricin poison. This study reviews toxic food plants from the forests of West Tropical Africa, their toxic substances, mechanisms of action and recommended ways to minimize their toxicity levels.