



# **Foodborne Infections and Intoxications: Chapter 32. Plant Toxins (Food Science and Technology)**

*Ahmed Mohamed Galal Osman, Amar G. Chittiboyina, Ikhlas A. Khan*

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The majority of plant species in the world are not edible, largely owing to the existence of toxins they produce. The process of domestication has diminished the levels of these toxic compounds over time, so the plant foods we consume today are far less toxic than their wild parents. Pyrrolizidine alkaloids (PAs) are the principal plant metabolites that pose a serious health threat to humans via foodborne plant intoxication. The main source of exposure to PAs is consumption of grains and bread that have become contaminated. Other sources such as milk, eggs, honey, and salad greens are less commonly implicated in human disease. PAs are particularly abundant in three plant families, namely Asteraceae, Fabaceae, and Boraginaceae. The major health risk of PA intoxication is the development of hepatic veno-occlusive disease (VOD). PAs may also be associated with severe adverse effects including carcinogenic, genotoxic, teratogenic, and pneumotoxic reactions. Because they are present in limited amounts or have low potency, and because of advanced processing techniques in detoxification, plant toxins other than PAs do not at present pose a large threat to human health.



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