Analysis of toxic alkaloids in body samples

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Many plants contain toxic alkaloids which may be dangerous to humans. Despite the large number of poisonous plants, cases of fatal plant poisonings are relatively rare. The frequencies of poisonings and the plants involved are often regionally specific. Plant poisonings can be aggregated into three categories: unintended ingestions, intended ingestions, and poisoning due to abuse of plant material. Unintended ingestions often occur in children or from a mix-up of plants and mushrooms in adults. Intended ingestions are common in homicides and suicides. Increasingly common is the abuse of plants for hallucinogenic reasons. Toxicological analysis of such alkaloids may help in diagnosis of poisoning or abuse cases. This review describes the toxic alkaloids aconitine, atropine, coniine, colchicine, cytisine, dimethyltryptamine, harmine, harmaline, ibogaine, kawain, mescaline, scopolamine, and taxine, which are often involved in fatal and non-fatal poisonings. The paper summarizes the symptoms of the intoxications and reviews the methods of detection of their toxic constituents in biological fluids.