

## K2 Lethal Self-Poisoning by Ingestion of Yew (*Taxus Baccata*, Taxacées): Two Case Reports

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**Learning Overview:** The goal of this presentation is to examine the interest of research toxins of yew in cases of unexplained deaths.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by increasing awareness of unusual poisonings with toxic plant intoxications.

**Introduction:** Yew trees, *Taxus baccata*, are evergreen trees that are widespread in Europe. Female yew trees produce black seeds surrounded by red fruits, called arils. Yew, used in certain chemotherapies, is potentially lethal in cases of ingestion. Except for the arils, all parts of yew are toxic. Presented here are two cases of yew self-poisoning.

**Clinical Cases:** The first case is a 28 year-old man who was found dead at home. He had tried to poison himself with yew 15 days before. Only round millimetric particles, appearing to be seeds, were found in the stomach during the autopsy.

The second case is an 18-year-old woman with no medical, surgical, or psychiatric history who had been admitted to intensive care after vomiting and cardio-respiratory arrest. The patient's health quickly deteriorated, and she was declared brain dead a few hours later. Fragments of green leaves were found at her home and identified by botanical analysis as yew. Similar elements were found in the stomach during the autopsy.

**Discussion:** Yew's toxicity is linked to the presence of taxines, found in varying concentrations throughout the year, with a peak in winter. It is mediated by two alkaloids, namely the taxines A, B, and their derivatives, but also by a phenolic component, 3,5-Dimethoxyphenol (3,5-DMP). Taxines, especially taxine B, have similar properties to anti-arrhythmics. The lethal dose is between 0.6 and 1.3g of leaves (1g containing 5mg of taxines) per kilogram of body weight. Symptoms appear quickly after ingestion, generally within two to five hours, and include digestive symptoms, arrhythmias, respiratory and neuromuscular troubles, all of which can lead to death.

Two techniques can be used to identify yew components: Gas Chromatography coupled with Mass Spectrometry (GC/MS) and High-Performance Liquid Chromatography/High-Resolution Mass Spectrometry (HPLC/HRMS). In case of yew poisoning, 3,5-DMP is usually found in blood and urine by GC/MS. In both cases presented, this test was negative, thus suggesting that the use of GC/MS alone may not be sufficient to detect yew intoxication. Yew-specific alkaloids were then measured using HPLC/HRMS and unequivocally showed the presence of taxines in the blood.

The findings of the enquiry into the patient profile and/or the discovery of vegetable particles in the digestive tract may warrant testing for yew poisoning. The absence of conclusive signs warranting testing may miss such poisonings. For this reason, it may be pertinent to test for these toxins in cases of unexplained deaths.

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### Fatal Poisoning, *Taxus Baccata*, Suicide