

## Seminars on Drug Sciences (SDS)

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Lecture of

## Caution poisonous! Plant toxins in human therapy, forensic medicine – and in detective stories

Plants employ a variety of defense strategies against their predators. These include high seed production, mechanical protections, attracting the enemies of their enemies or pollen distributors, and evolving deadly molecules for self-protection. In early medicine, humans learned to use these potent natural products as remedies for numerous ailments, though safe dosing was a significant challenge, often leading to fatal outcomes. Conversely, individuals with malicious intent administered decoctions of medicinal plants, such as mandrake, hemlock, or henbane, in lethal doses as murder poisons.

During Greek and Roman antiquity, aconite was the preferred plant for poisoners. However, in subsequent centuries, plant toxins were replaced by highly toxic, tasteless, and scentless arsenic trioxide, which became the poison of choice due to its easy availability as rat poison. This practice changed dramatically in 1840 when British chemist James Marsh developed a highly sensitive test for white arsenic, which was soon adopted by forensic toxicology. Murders then had to shift tactics, taking advantage of early successes in the isolation of alkaloid toxins. Pure poisons required much smaller quantities for lethal doses, and the lack of knowledge about their physico-chemical properties and mild isolation methods to detect intact toxins in victims' bodies posed significant challenges for proving murder. The advancement of new techniques in preparative and analytical chemistry was crucial for modernizing forensic toxicology, and scientific experts began to play a more significant role in court proceedings.

In 18th-century France, famous criminal cases and their trials were compiled for educational purposes for law enforcement authorities and law students. Unsurprisingly, the public enjoyed reading these thrilling true crime cases. By the 19th century, the growing collection of court reports, known as "Pitaval," became an invaluable resource for writers pioneering the new genre of detective novels.

Nowadays, poisoning is often incidental in homicides. However, forensic toxicologists and the German Federal Criminal Police Office estimate that only 50% of such cases are detected.

Wednesday, April 09, 2025 17:15 - 18:15 Lecture Hall 1, Pharmacenter, Klingelbergstrasse, 50, Basel

> Host: Prof. O. Potterat Pharmaceutical Biology

