



K1 Determination of Toxins and Alkaloids Markers of the Toxic Plant, *Ricinus communis* Linn by New Complimentary Technique

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Attendees will be briefed on the tentative identification of an unknown toxin protein in trace amounts by the presented identification scheme. The method is quick and efficient, especially for forensic samples.

Bioterrorism is a global threat. The appearance of some plant toxins in the terrorism literature has diverted the attention of the forensic science community to study these plant toxins, which are potential mass homicide agents. The author's research findings will impact the forensic community and/or humanity by helping forensic science and law enforcement agencies in the rapid identification and characterization of suspected plant toxin proteins.

The present paper describes the toxicological aspect of a plant having active principles in the form of alkaloids, glycoprotein's, etc. The toxicological study of this plant is very important for forensic science due to its appearance in terrorism literature and its potential for use as a mass homicide agent.

Goal: To develop a new complementary technique and protocol for the general protein and the identification of toxins derived from the seeds of plant *ricinus communis* Linn.

Method: The author used boiling methanol for the extraction of the active principles from a forensic sample suspected to contain castor seeds along with a reference sample of castor seeds collected from trans Himalayan and Himalayan region. Extracted residue was tested for its greatest solubility in different solvents. The author experimented with different percentages of SDS page and finally approved 12.5% SDS page for isolation, characterization, and tentative identification of the unknown toxin protein.

Results: The study reveals that the suspected samples and reference sample exhibits 8 different bands, visualized by using the Coomassie bright blue. The molecular weight of 8 protein bands was determined by using molecular dynamic image quant and the molecular mass of different 8 bands is started from 13 kd to 44 kd. The molecular weight of the three major bands no. 6, 7, & 8 is 23 kd, 20 & 18 kd. Bands no. 6, 7, & 8 is 23 kd, 20 & 18 kd, exhibits the agglutination & haemolysis activity in red blood of corpuscles.

Conclusion: The tentative identification of unknown toxin protein in trace amounts is possible by the presented identification scheme. The present method is quick and efficient especially, for the determination, identification, and characterization of plant toxin proteins in forensic samples.

Ricin, Toxin, Protein