

H150 The Botanical Survey in the Collection of Scientific Evidence for Reconstructing the Dynamics of Deaths From High Falls: A Case Report and Review of Literature

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Learning Overview: After attending this presentation, attendees will understand the role of forensic botany in crime scene investigation.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by demonstrating the importance of botanical surveys in reconstructing the dynamics of death from high falls.

Scene investigation plays an important role in a crime. Often the crime scene is an open environment consisting of trees, plants, and shrubs. The forensic pathologist must compare the botanical elements with the evidence present on the victim.¹ Although the discovery of botanical elements on the scene is very common, to date forensic botany is a resource still underestimated. Investigators often fail to identify all elements and sometimes this evidence can be degraded or indistinguishable. For this purpose, DNA sequencing and biomolecular investigations become fundamental.² In literature, forensic botany was used to determine the path followed by the victim and to exclude other possible routes.³ Forensic botany was crucial for demonstrating that the primary scene of a crime was falsified.⁴ Sometimes, the crime scene and autopsy do not provide sufficient evidence. For example, in deaths from high falls, the forensic pathologist may have difficulty establishing the point of fall, the trajectory, the collision with obstacles, and the point of impact.

Reported here are two cases of death from high falls. The first case concerns a child who fell from the sixth floor of her home. The circumstantial data showed that the victim had fallen from the bathroom's window although there were some doubts about her suicide because of the presence of a gazebo that could be a possible way to escape from her house after a family quarrel. The girl was found on the ground near a gazebo that was completely destroyed. The gazebo was on the ground floor in the apartment of a neighboring family. About 1.5 meters from the gazebo, there was a separating hedge, more than two meters high. During the inspection, some botanical elements corresponding with the separating hedge were found on the victim's clothes and hair. The external examination excluded signs of a scuffle or violence. The botanical elements suggested an impact of the body on the hedge and subsequently a projection toward the gazebo with following breakage. According to the evidence on the scene, investigators established the mode of death due to suicide.

In the second case, an elder male was found on the ground, below a hill. The scene consisted of undergrowth vegetation. The head was resting on a blood-stained stone. Some shredded leaves were found in the victim's left hand, and some thorns were attached to the left sleeve of his sweater. Autopsy showed that the victim had widespread abrasions and bruises. A head injury was found, with petechiae (Wischnewsky Lesions) on the gastric mucosa. The autopsy showed no signs of scuffling and revealed that he died by frostbite because he was restrained due to head injury. There were doubts about the mode of death that were clarified by the botanical analysis of the point of fall and impact, confirming the hypothesis of a fall from height by accident.

Falls may be from a great height (more than ten meters) or from a medium height (less than ten meters). In the first case, there is a disproportion between the external injuries and the severity of organ lesions. In the second case, there are more external injuries.⁵ In fatal falls, the evidence on the scene or autopsy findings are often insufficient to establish the dynamics. In the two cases reported, this study shows how the comparison between the data on the scene and the botanical findings on the corpse allow a reconstruction of the dynamics in relation to the external environment. The botanical analysis allowed calculation of the point of fall, the trajectory, and the point of impact precisely. These data were fundamental, together with other evidence collected, to determine the mode of death. For this reason, it is important, especially in cases of fatal falls in open environment, to: (1) evaluate the entry and exit ways of the area, (2) record the position of the corpse, (3) compare the botanical elements on the scene with the evidence on the clothes or victim, and (4) exclude signs of violence and other causes of death at autopsy.

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Forensic Science, Forensic Botany, Falls From Height