

Área: EDU

Forensic Chemistry as a Didactic Strategy: Analysis of the Itinerant Approach and the Case Study ‘Who Killed Sofia?’ in a Private Educational Institution

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Palavras-Chave: *violence; woman; chemistry; experimentation; case study.*

Highlights

The project combines chemistry and gender violence awareness through active learning and forensic experimentation. In the case study “*Who Killed Sofia?*”, students acted as forensic analysts, using chemical tests to solve a simulated femicide, fostering critical thinking and social awareness.

Resumo/Abstract

The project addressed the issue of gender-based violence in Brazil through an educational approach that integrated chemistry, forensic science, and social awareness. Considering the alarming increase in cases of violence against women—particularly during the pandemic and often linked to substance use—the initiative sought to promote reflection and critical thinking among students. Conducted as part of the extension project “*Female Representation, Scientific Dissemination, and Social Inclusion from PPGQTA: Gurias na Ciência*”, the activity applied active learning methodologies using experimentation and forensic chemistry to make the topic dynamic and engaging for high school students. A mobile case study titled “*Who Killed Sofia?*” was developed and applied to students in the third year of a private high school in Rio Grande. The activity simulated a femicide investigation, in which students acted as forensic analysts responsible for solving a crime through scientific evidence. The crime scene included elements such as fingerprints, fake blood, a white powder, and a note, encouraging students to investigate using chemistry-based experiments.

The experimental activities included several forensic procedures: a breathalyzer test using potassium dichromate to identify alcohol presence; DNA extraction simulated with strawberry samples; identification of functional groups in substances related to cases of violence, such as antidepressants and analgesics; and fingerprint revelation using iodine and black powder techniques. Results showed that the students were able to apply theoretical and practical knowledge to interpret evidence, hypothesize causes, and identify the suspect through chemical analysis and fingerprint matching. Beyond scientific learning, the project encouraged discussions about gender violence, substance abuse, and social responsibility. Overall, the initiative successfully combined chemistry education with human rights awareness, fostering meaningful learning, critical reflection, and social engagement among students.

Agradecimentos/Acknowledgments

I thank the PPGQTA, the Federal University of Rio Grande do Sul (FURG), and the extension project *Gurias na Ciência* for their support, guidance, and valuable contributions that made this work possible.