



The faculty of Biotechnology and Food Engineering

Seminar

Dr. Simcha Shimron

Division of Identification and Forensic Science (DIFS), Israeli Police

Challenges in Forensic DNA Profiling and Illicit Drugs Identification; applying forensic science in various crime cases, integrating law and science and finding novel methods for dealing with evolving scientific challenges

Abstract

Scientific evidence plays a key role in modern day courtrooms. Exhibits from crime scenes are collected and analyzed by the experts of the Division of Identification and Forensic Science (DIFS) of the Israeli police. Reports given by experts from the DIFS are usually a product of a laborious and meticulous process. The analysis must meet scientific standards as well as judicial requirements. The two largest laboratories of the DIFS are the National Drugs Laboratory and the Biological laboratory. The National Drugs Laboratory deals with analyzing and identifying exhibits that are suspected of containing illicit drugs. The identification is based on at least two independent matching scientific results. In accordance with the Israeli dangerous drugs ordinance, the results of exhibit examinations are based on qualitative analyses. Among the scientific challenges that the laboratory frequently deals with are samples of mixed components, new psychoactive substances (NPS) that are introduced into the market and the necessity of finding new methods for the fast and reliable identification of substances

The biological laboratory of the DIFS is responsible for analyzing exhibits from various crime scenes with the purpose of finding DNA traces which could then be amplified via PCR. Using the amplified specimen, a DNA profile is constructed which could lead to a possible match with other exhibits, a suspect's profile or a profile from the national DNA database. With the growing importance of DNA profiles in the outcome of trials it is necessary to seek new methods for finding DNA traces from various kinds of exhibits and for dealing with new challenges such as touch DNA items, identification of the biological origin of the stain (semen, blood, epithelia cells and ext.), estimating the age of the stain, constructing a suspect's facial composite from DNA (hair, eye color and ancestry) and more.

Wednesday, 27.02.19, 14:00 – 15:00, Room 300

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