

"ژورنال منتخب الزویر در حیطه جرم شناسی و حقوق"

چکیده ی مقاله های زیر در صورت تمایل قابل ترجمه می باشند

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1. Most Downloaded

Analysis of fingerprint samples, testing various conditions, for forensic DNA identification

Abstract

Fingerprints can be of tremendous value for forensic biology, since they can be collected from a wide variety of evident types, such as handles of weapons, tools collected in criminal cases, and objects with no apparent staining. DNA obtained from fingerprints varies greatly in quality and quantity, which ultimately affects the quality of the resulting STR profiles. Additional difficulties can arise when fingerprint samples show mixed STR profiles due to the handling of multiple persons. After applying a tested protocol for sample collection (swabbing with 5% Triton X-100), DNA extraction (using an enzyme that works at elevated temperatures), and PCR amplification (AmpF/STR® Identifiler® using 31 cycles) extensive analysis was performed to better understand the challenges inherent to fingerprint samples, with the ultimate goal of developing valuable profiles ($\geq 50\%$ complete). The impact of time on deposited fingerprints was investigated, revealing that while the quality of profiles deteriorated,

full STR profiles could still be obtained from samples after 40 days of storage at room temperature. By comparing the STR profiles from fingerprints of the dominant versus the non-dominant hand, we found a slightly better quality from the non-dominant hand, which was not always significant. Substrates seem to have greater effects on fingerprints. Tests on glass, plastic, paper and metal (US Quarter dollar, made of Cu and Ni), common substrates in offices and homes, showed best results for glass, followed by plastic and paper, while almost no profiles were obtained from a Quarter dollar. Important for forensic casework, we also assessed three-person mixtures of touched fingerprint samples. Unlike routinely used approaches for sampling evidence, the surface of an object (bottle) was sectioned into six equal parts and separate samples were taken from each section. The samples were processed separately for DNA extraction and STR amplification. The results included a few single source profiles and distinguishable two person mixtures. On average, this approach led to two profiles $\geq 50\%$ complete per touched object. Some STR profiles were obtained more than once thereby increasing the confidence.

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2.Recent Articles

The chronology of the radiographic visibility of the periodontal ligament and the root pulp in the lower third molars

Abstract

Eruption and mineralization of third molars are the main criteria for dental age estimation in living adolescents. As the validation of completion of the 18th year of life appears not to be possible with the forensically necessary probability even if all the third molars of a person are completely mineralized, degenerative dental characteristics might be used for this purpose. In previous publications by Olze et al. (2010a,b) the radiographic visibility of the periodontal ligament and the root pulp in lower third molars were suggested as methods for this purpose. The aim of this study was to validate these characteristics in a large study population with a wide age range. In a material of 2346 orthopantomograms of 1167 female and 1179 male Germans aged from 15 to 70 years the radiographic visibility of the root pulp in the lower third molars with completed mineralization were studied according to stage classifications proposed by Olze et al. (2010a,b). 1541 orthopantomograms of 705 females and 836 males with a sufficient quality of the radiograph showed at least one third molar. The suitability of the studied characteristics for age estimation in living individuals could be confirmed. Males and females presenting stage 1 of both characteristics were older than 18 years of life. Males and females presenting stage 2 of both characteristics were older than 21 years of life. The high number of missing third molars in the studied age group (46–60%) must be considered as a limitation of the methods. In further studies the influence of ethnicity, dietary habits and modern dental health care on the characteristics in question should be investigated.

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3. Most Cited

A methodology for finger mark research

Abstract

Currently there is no standard way of carrying out research into finger mark enhancement techniques. Individuals, groups or establishments tend to use different methodologies depending on a number of factors, especially finance and time. However, data published in the literature can be misleading to the forensic community if the data generated reflects research involving very few finger marks or if those finger marks have been deliberately doped with an unnatural balance of sweat or an unusual contaminant. This paper presents an experimental methodology which is intended to establish minimum standards for those carrying out finger mark enhancement research (at least within the United Kingdom) and bring some consistency to the process. It will aim to identify the many variables encountered when dealing with finger marks and suggest experimental methods to take these into account. It will also present the key stages of the progression of a process from a laboratory concept to a tool used on operational work.

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4. Open Access Articles

مقاله زیر بصورت کامل قابل دریافت و در صورت تمایل قابل ترجمه می باشد

Patterns of exchange of forensic DNA data in the European Union through the Prüm system

Abstract

This paper presents a study of the 5-year operation (2011–2015) of the transnational exchange of forensic DNA data between Member States of the European Union (EU) for the purpose of combating cross-border crime and terrorism within the so-called Prüm system. This first systematisation of the full official statistical dataset provides an overall assessment of the

match figures and patterns of operation of the Prüm system for DNA exchange. These figures and patterns are analysed in terms of the differentiated contributions by participating EU Member States. The data suggest a trend for West and Central European countries to concentrate the majority of Prüm matches, while DNA databases of Eastern European countries tend to contribute with profiles of people that match stains in other countries. In view of the necessary transparency and accountability of the Prüm system, more extensive and informative statistics would be an important contribution to the assessment of its functioning and societal benefits.

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