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FEATURE FOCUS



Fingerprints can reveal race and sex

By Nic Fleming, Science Correspondent

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A new fingerprinting technique that can identify the race and sex, and possibly the diet of suspects has been developed.

Scientists have shown that using a gelatine-based gel and high-tech chemical analysis can provide significant clues to a person's identity even if police do not hold existing fingerprint records.

The new method can pick up tiny traces of substances such as gunpowder, drugs, or biological or chemical weapons. Preliminary tests, highlighted in this month's edition of the journal Analytical Chemistry, also suggest it could be used to provide crucial court evidence by pinpointing the precise time - accurate to the nearest hour - that prints were left at crime scenes.

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Prof Sergei Kazarian, from Imperial College London's Department of Chemical Engineering, who led the team that developed the technique, said: "Our trials show that this technique could play a significant role in the fight against crime.

"The combined operational advantages and benefits for forensic scientists of tape lifting prints and spectroscopic imaging really maximises the amount of information one can obtain from fingerprints.

"By focussing on what is left in a fingerprint after periods of time, scientists could potentially gauge how old a crime scene is.

"Studying what happens to prints, when they are exposed to high temperatures, could also

be particularly significant, especially in arson cases where lifting prints has been notoriously hard."

Chemical residues containing a few millionths of a gram of fluid can be found on all fingerprints, however they are often distorted or destroyed by conventional techniques.

Prof Kazarian found that using commercial gelatine based tape, already used by police to collect footprint, can provide a simple method for collection and transportation of prints.

He analysed prints left by volunteers under spectroscopic microscope - providing a detailed picture of its chemical make-up.

Particular chemical compositions were found to provide specific clues to the identity of the volunteer who left the fingerprint.

Strong traces of urea, a chemical found in urine, suggested a man left the print.

Lower levels of the chemical made it more likely to be from a women.

Specific amino acids indicated whether the "suspect" was a vegetarian or meat-eater, and different fatty acid profiles suggested provided clues to their racial origins.

Prof Kazarian added: "In the courtroom of the near future, chemical images could feature as key evidence.

"I hope our work assists law enforcement authorities to bring dangerous criminals to justice."

Forensics experts both from the Home Office and the US government are known to be studying the results of the initial tests with interest.

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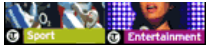
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