

## **IMPORTANCE OF A DIFFERENTIAL EXTRACTION PERFORMANCE**

Veronica Villegas, Policia Nacional del Ecuador, Subdirección Técnica Científica de la  
Policía Judicial

One of the advantages of doing a differential extraction lies in sexual assault cases where the guilt of two offspring individuals of the same paternal lineage is suspected, and where the study of the Y Chromosome Haplotype results ineffective, so it should be done an autosomal genetic profiles analysis to identify a suspect, but due to the large number of epithelial cells in the sample corresponding to the victim those mask sperm cells necessary to provide reliable results for each case.

To Forensic Genetics Laboratory of Ecuador Judicial Police, was assigned a case of rape with the guilt of murder where two individuals within the same family environment were assumed. The evidence that we received were: a vaginal swab, rectal swab, and a plates with vaginal and rectal smears respectively. We used genetic material derived from the plates due to the impossibility of having the swab samples because those have been completely consumed in previous analyzes. To detach the cells from the plate was used a swab with the tip coated by nylon short fibers arranged perpendicularly without an absorbent inner core to trap the sample for that reason was allowed a complete elution of cellular material. DNA of the swabs was isolated from the plates by DIFFERENTIAL EXTRACTION technique that is a method of sperm and epithelial fractions separation achieving amplification of two complete autosomal genetic profiles.

The differential extraction was done with DIFFEREX™ kit from Promega and the DNA extracted from the separated fractions were amplified with NGM™ PCR kit from Applied Biosystems and the PowerPlex® Y23 from Promega. Complete female and male profiles were obtained as well as a Y chromosome profile, thus achieving done a discrimination of possible suspects who shared the same Y-chromosome haplotype inherited patrilineal.