

DETECTION OF A MIXTURE PROFILE IN SAMPLES FROM A SEXUAL ASSAULT WITH A LOW NUMBER OF SPERM CELLS

Ruth Marlen Figueroa Franco, MSc., María Cristina Alava

Laboratorio de DNA. Instituto Nacional de Medicina Legal y Ciencia Forenses

Bogotá – Colombia



Sexual assaults represents a public health problem of high impact in Colombia. Our laboratory during the last years has received a great demand of cases and has served of support in the resolution of these crimes by means of the use of the genetic test. Nevertheless, in spite of the fact that the genetic analysis has shown to be a very useful tool, the success of this test is influenced by a variety of factors, such as the sample collection, the number of cells in the evidence, and the preservation, among others.

We present a case of a sexual assault occurred in Pereira (Risaralda) in which we only received the victim's panties as evidence for study. Four fragments were studied from the evidence that shown a low number of sperm cells (0-4)/slide after Christmas tree stain done during the differential extraction. Preliminary DNA test were done but it was not possible to obtain a genetic profile, however after a modification of the current procedure by concentrating extracted and re extracted DNA samples using microcom concentrators it was possible to obtain a mixture genetic profile for 12 STR's markers. From the number of alleles detected in each systems we identified two contributors a female and a male. Applying the statistical analysis proposed by Weir, B, 1997, the suspect was included as a contributor of the mixture with a Likelihood ratio of 216.8 millions. The results of the analysis of this case has permitted us to implement in our laboratory the final concentration of DNA after extraction of the forensic samples coming from sexual assaults where the recount of sperm cells is smaller to 10 by preparation and optimize the procedure of other forensic trace evidences.