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Analysis of bovine DNA in bone samples, exposed to different physical conditions encountered in cases of cattle rustling

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World beef production has undergone major changes in recent decades thanks to the implementation of new technologies in breeding, helping Panama to make great improvements at the livestock area, thanks to the use of methods of artificial insemination and new breeding genetic techniques. But these advances have been greatly affected by a dangerous element called cattle rustling, showing until March 2013 that the amount of damage was around the \$79.158 where it was able to recovered only \$30.490, according to data released by the Department of Criminal Investigation of the Crimes Investigations Unit in Panama. This issue sparked major interest in this research which was focused on studying the different analysis systems of bovine DNA using bovine bone samples exposed to different physical conditions as we can mention: frozen samples, putrefied samples and cooked samples. This are the physical conditions in which the bone remains are more commonly found in the cases of cattle rustling. The objective was to compare the samples using two different DNA extraction methods including: organic and semi-automated systems with magnetic beads (phenol chloroform and Maxwell robotic system) to determine which of the two could be more efficient techniques, depending on the state of the samples of cattle bones, allowing greater efficiency in the analysis of each case. We also made use of amplification and detection methods using StockMarks[®] kits.

Biography

Julio I Delgado is a last year Bachelor Biotechnology Graduating student at the age of 25 years from the Latina University of Panama and he works in the Institute of Legal Medicine and Forensic Science of Panama in the DNA and Bimolecular Department as a DNA analyzer technician, assisting in the areas of CODIS and helping in the Non-human research department. He has received CODIS training from the FBI and recently won the first place in the poster of free investigation category at the VII national contest of free scientific research and V International Congress of Legal Medicine and Forensic Science of Latin-America 2014.

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