

Abstract Template

Format:

Title: ALL CAPITALS (BOLD) Authors: List authors first and last names, Use an asterisk (*) to denote the presenter Affiliations: List the affiliations of the authors. Where there are more than one affiliation, use superscripts to indicate correspondances between authors and affiliations. Text: No more than 250 Words. Times New Roman Font, 12 pt, single spaced.

Example:

THE EXTRACTION AND AMPLIFICATION OF MITOCHONDRIAL DNA FROM HUMAN TEETH THAT HAD BEEN EXPOSED TO EXTREME HEAT.

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Cremated remains pose interesting problems in forensic cases. The human body can be burnt beyond recognition. It can even be difficult to determine if the remains are human or animal. One technique that has been established is the extraction, amplification, and analysis of mitochondrial DNA from the teeth of cremated remains. Using PCR and primers specific for regions of the mitochondrial DNA of humans, in their hyper-variable regions, one can establish if the remains are human, and their possible maternal heritage. Based on a number of physical characteristics established in control burns, this study set out to determine at what stage of cremation mitochondrial DNA could no longer be extracted, purified, and amplified. Using techniques already established in the literature and a new technique of isocode® stick purification was used to create a template used in polymerase chain reaction of a small region of hyper-variable region

I. This study determined that teeth burnt at temperatures up to seven hundred degrees could still contain usable mtDNA as long as the root is still intact. It also determined that isocode® sticks are a helpful tool in eliminating PCR inhibitors, and provide an easier and more reliable method for the extraction of mtDNA from teeth. With this extraction and purification method, amplifying charred teeth up to the point of incineration or where the teeth actually combust themselves was possible. Thus teeth that were white, blue, grey, black, and brown could all have their mtDNA extracted and color had no effect on the mtDNA. It was the loss of anatomical continuity, by the means of dislocation, which caused the teeth to no longer have amplifiable mitochondrial DNA.