

The goal of this project was to determine if the yellow fever virus (YFV) could be detected in historical remains by analyzing the proteins found in the dental pulp. Previous studies have detected blood proteins and viral proteins in dental pulp, although these methods have never been applied for the purpose of yellow fever virus detection. These past studies serve as a justification for this current study and validate the idea that identifying the virus through the dental pulp could be possible. Typical yellow fever virus diagnostic techniques rely on blood or liver tissue, so when these sample types are not recoverable, yellow fever detection is limited. In order to meet the objectives of this study, a retrograde collection method was used to extract dental pulp on modern teeth and teeth from a historical cemetery site. The modern teeth serve as a control to determine if blood is detectable in dental pulp. The historical remains are possible victims of the YFV. Following dental pulp extraction, the pulp was subject to a protein extraction methodology and was analyzed via liquid chromatography with tandem mass spectrometry (LC-MS/MS). Although no known yellow fever virus proteins were detected in the samples tested during the study, the methodologies used throughout this study were successful and could be used in future studies. The findings indicate that yellow fever proteins could be detectable if present in dental pulp samples and also expands upon current knowledge of the general proteins found within dental pulp. This research and its applications could prove valuable for the fields of archaeology and paleomicrobiology.