Abstract

Computerized panoramic dental X-ray imaging technology uses information recorded from dental treatment history. Teeth are considered a biometric tool to identify people in cases where their bodies have been severely affected, such as to distinguish victims of disasters and fire accidents. In cases where evidence such as DNA, fingerprints, and iris cannot be examined, gender identification is an important factor in establishing personal identity. Tooth enamel is the strongest material in the human body. Resistant to burns from temperature up to 500 degrees Celsius. And the jawbone is the part that is the strongest and most durable. Including showing high levels of gender differences gender. Additionally, the jawbone is the strongest and most durable part of the human body, exhibiting high levels of gender differences. These characteristics of the teeth form the basis for this research. Using medical technology, panoramic dental X-rays taken from living individuals' dental records can determine gender when compared with post-mortem panoramic dental X-rays used as a database to compare traces of events involving lawsuits. Consequently, this guideline is for verifying personal identity by identifying gender from computerized panoramic dental X-rays. For this reason, this study aims to measuring inter-canine distance and finding the ratio of crown width to root length on computerized panoramic dental X-rays in males and females using the ImageJ program and analyzing with the GraphPad Prism 8 program. The results showed that the average ratio of crown width to root length was higher in males than in females, and inter-canine distance was greater in males than in females. These results emphasize the critical role of panoramic dental X-rays and image processing in biomedical engineering for accurate gender identification.