

Forensic odontological application for dental restorations in case of skeletal remains using energy-dispersive X-ray fluorescence spectrometry

Naoko Tanaka¹, Hiroshi Kinoshita¹, Ayaka Takakura¹, Yumiko Ohbayashi²,
Mostofa Jamal¹ and Kiyoshi Ameno¹.

¹Department of Forensic Medicine, Kagawa University, 1750-1 Miki, Kita, Kagawa 761-0793, Japan

²Department of Oral and Maxillofacial Surgery, Kagawa University, 1750-1 Miki, Kita, Kagawa 761-0793, Japan

Abstract

Background: We applied energy-dispersive X-ray fluorescence spectrometry (EDX) for elemental analysis of dental restorations in a case of skeletal remains. This identified high peaks corresponding to silver, palladium, copper, and gold, matching gold-silver-palladium alloy. Our results suggest that EDX may serve as a useful tool in the field of forensic odontology and provides valuable information.

Key words: Energy-dispersive X-ray fluorescence spectrometry, simple test, dental restorations, alloy