



# JOURNAL of FORENSIC ODONTO-STOMATOLOGY

VOLUME 31 Supplement 1 October 2013  
Abstract book IOFOS Conference 2013 Firenze

## CARBONIZED BODIES IDENTIFICATION – THE RESIN COMPOSITE FLUORESCENCE CONTRIBUTE

Cristina Figueiredo\*, Ana Teresa Corte-Real, Maria Emilia Azenha, Duarte Nuno Vieira

*\*Faculty of Medicine, University of Coimbra, Portugal*

*The authors declare that they have no conflict of interest.*

**Background:** *The identification of carbonized bodies is a challenge in the practice of Legal Medicine, especially due to the lack of information that is preserved after the action of high temperatures (1-4). In such cases, all the information that can be collected from the corps assumes vital importance (5-7). Teeth and dental materials, due to their high proportion of inorganic components have a special contribute in such cases. Objectives:* *The aim of this study is to evaluate the fluorescence of dental composites before and after they are subjected to high temperatures. It is also an objective to compare the fluorescence differences between three commercial brands of composites. Method:* *Three brands of dental composites Voco®, Kerr® and Colthéne® were selected with the commercial names of Grandio®, Herculite XRV® and Synergy D6® respectively. These materials have been subjected to a range of high temperatures (200°C, 250°C, 300°C and 500°C), during 1 hour. After that fluorescence was analyzed with a Fluorometer (Spex Fluorolog, FL 3-22) and assessed all the emission spectrum. Results:* *The dental composites analyzed showed differences in fluorescence spectrum at room temperature. At 200°C, comparing the emission spectra with exciting  $\lambda$  of 400nm it is possible to distinguish the dental composites Herculite XRV® from Voco®. At 250°C it is possible to distinguish, as well, from emission spectra the dental composite Herculite XRV® from Voco® and Synergy D6® (these last two materials have identical behavior). The fluorescence disappears, in all materials, at 300°C. Conclusion:* *Every method of dental identification that is based in fluorescence of dental composites will be inconclusive, at temperatures of 300 or more Celsius degrees, but can differentiate, at lower temperatures, the brands of resin composite studied. In situations of victims subjected to high temperatures, when other methods of identification cannot be used, this method can provide additional and essential information to make the identification.*

**KEYWORDS:** Forensic Odontology, Identification, Composite resin

JFOS. October 2013, Vol.31, Sup.No.1 Pag 138  
ISSN :2219-6749