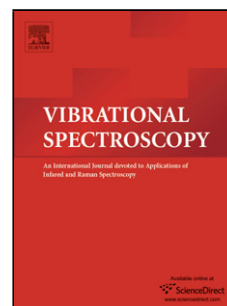


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# Portable NIR $\mu$ -Raman spectroscopy investigation on Early Bronze IV pottery from Khirbat Iskandar, Jordan

Daniele Chiriu<sup>(1)\*</sup>, Pier Carlo Ricci<sup>(1)</sup>, Maddalena Scattini<sup>(2)</sup>, Andrea Polcaro<sup>(2)</sup>, Marta D'Andrea<sup>(3)</sup>, Suzanne Richard<sup>(4)</sup> and Carlo Maria Carbonaro<sup>(1)</sup>

*(1) Dept. of Physics – University of Cagliari – Cittadella Universitaria S.P. n°8 km 0.700 - Monserrato (Italy)*

*(2) Dipartimento di Lettere. Lingue, Letterature e Civiltà antiche e moderne - University of Perugia - Piazza Morlacchi – Perugia (Italy)*

*(3) Dipartimento di Scienze dell'Antichità - Sapienza University of Rome –Via dei Volsci 122 - Rome (Italy)*

Highlights:

- Portable Raman technique applied to Cultural Heritage; Characterization of ancient potteries; Identification of Manufacturing parameters; Provenance Markers; Study on the ancient pottery production;

## Abstract

Portable Near Infrared Micro-Raman (NIR  $\mu$ -Raman) spectroscopy was used, as a preliminary and non-destructive technique, in order to investigate the mineralogical composition of a group of pottery sherds from Khirbat Iskandar, Jordan. Preliminary results show that the ceramic body is composed mainly of quartz, calcite, and minor amounts of feldspars and hematite. In addition, the presence of Olivine and anatase, important markers to identify the provenance of raw materials, was detected. Furthermore, the occurrence of Portlandite was related to both rehydration of calcite and burial alteration processes. Finally, a study of Raman spectrum of Amorphous Carbon, identified as temper in the clay, was performed to estimate the manufacturing parameters (maximum temperature and permanence time).

## 1. Introduction

Scientists and archaeologists are continuously involved in the research of new technologies to be able to improve characterization of ancient artifacts [1,2]. The challenge in the field of Cultural Heritage consists in

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