

# Translucent beads, shinier worlds. A preliminary approach to fluorite beads from the Iberian Peninsula

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## INTRODUCTION

Prehistoric ornaments are considered as aesthetic categories that show, emphasize and materialize codes, metaphors and narratives socially shared (Bar-Yosef Mayer and Porat 2008; DeMarrais et al. 1996; Hodder 1982; Tilley 1999; Wright and Garrard, 2003). Some values and properties as colour (Jones and MacGregor, 2002; Sahlins, 1976), but also brightness (Gaydarska y Chapman, 2008), have been highlighted as determinant of cultural/symbolic and technological choices in Prehistoric materiality, conditioning the raw material selection.

Transparent and translucent minerals are considered for the Neolithic onwards as rare and highly symbolic elements. This paper shows that translucent beads accounts for an ample variety of raw material (i.e., calcite, muscovite, quartz varieties...).

Fluorite (CaF<sub>2</sub>) occurs worldwide, and it's relatively frequent in western Europe, and the Iberian Peninsula. Its properties (4 hardness in Mohs' Scale) made it easy to worked out and cleavage for making ornaments. Some Belgium's Upper Palaeolithic sites gave important evidences of its use (Goemaere et al., 2013; Jungels and Goemaere, 2007) and French and Belgian Neolithic and Copper Age communities used fluorite as a rare raw material for personal ornaments.

## MATERIALS AND METHODS

Translucent beads raw material characterization was performed by means of a 785 nm BWTek iRaman plus portable Raman spectrometer. Recorded spectra were after compared to spectra reference database (ruff.info) in order to assess beads raw material.

## CASE STUDY

### Portuguese fluorites

Besides the pioneer fluorite characterization of a bead from Cova da Moura (Óbidos) by Bensaúde (1884), fluorite beads were recorded by Cardoso in four Portuguese sites in a first regional approach to this mineral distribution (Cardoso et al., 2012). Additionally, a fluorite bead was also reported by Ribeiro y Loureiro (2015) for Mámoa 5 do Leandro (Maia).

Other 5 late 4<sup>th</sup> millennium to late III<sup>rd</sup> millennium BC contexts with fluorite ornaments are reported in this work, and other long ago reported fluorite beads, as the Poço Velho one, are now accurately characterized as other raw materials.

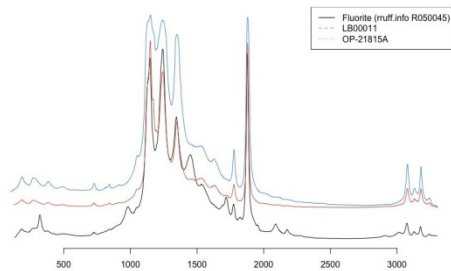


Fig. 1. Lapa do Bugio and Olival da Pega analysis with fluorite spectra comparison



Fig. 2. Fluorite beads from Anta Grande da Comenda da Igreja (photographs M. A. Andrade)

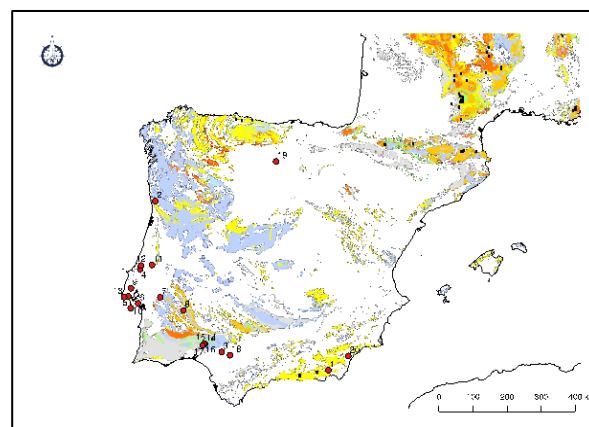


Fig. 3 Fluorite geological occurrence in Iberian peninsula and Late Prehistory's contexts where this mineral was used.

### Spanish fluorites

Only two "non-ornamental" items of fluorite mineral are known to date, both in Sevilla province: one unpublished conical and partially carved piece from the site of Valencina de la Concepción, and an impressive green fluorite fragment from Cueva del Vaquero in Gandul megalithic necropolis (Alcalá de Guadaíra), published as a quartz fragment by Leisner's (1943).

The use of fluorite ornaments seems to be limited to western Sierra Morena, where revisited materials from El Pozuelo and Los Gabrieles megalithic necropolis (Huelva) offered one bead per tomb in Pozuelo 1, 5 and 7 and in Gabrieles 6. This last specimen was originally published as "fluorite" (Blanco and Rothenberg, 1981) but not analyzed until this work.

Other cases are reported, as one fluorite bead was published for the collective burial of La Velilla (Palencia) in northwestern Spain, and four beads from "prestige" tomb 12 of Los Millares (Santa Fé de Mondújar, Almería) megalithic necropolis were also studied here and represent the southeast.

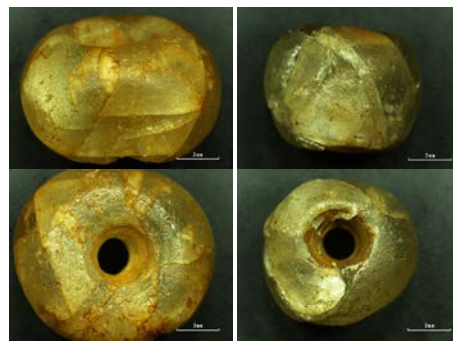


Fig. 4 El Pozuelo 7 (left) and El Pozuelo 1 (right) fluorite beads.

## CONCLUSIONS

Fluorite procurement was rare in the Iberian Peninsula and possibly had a strong symbolic role due to its properties (fluorescence, termoluminescence). Green fluorites were mostly used.

Even when absolute chronologies are still needed, Iberian Peninsula's fluorite ornaments seems to be chronologically constrained from half 4<sup>th</sup> millennium BC to half 3<sup>rd</sup> millennium BC, despite some evidences in the 2<sup>nd</sup> millennium are recorded.

Inventory of fluorite ornaments has increased the items of this mineral known and shows an Atlantic orientation by the great western rivers (Duero, Tajo, Guadiana) of its demand, with a significant concentration in Tagus' basin (Lisboa and Setúbal peninsulæ) and in western Sierra Morena (El Pozuelo, Los Gabrieles).