

Investigating colours on a Greek Hellenistic Gnathia - ware pyxis with lid from Morgantina, Sicily

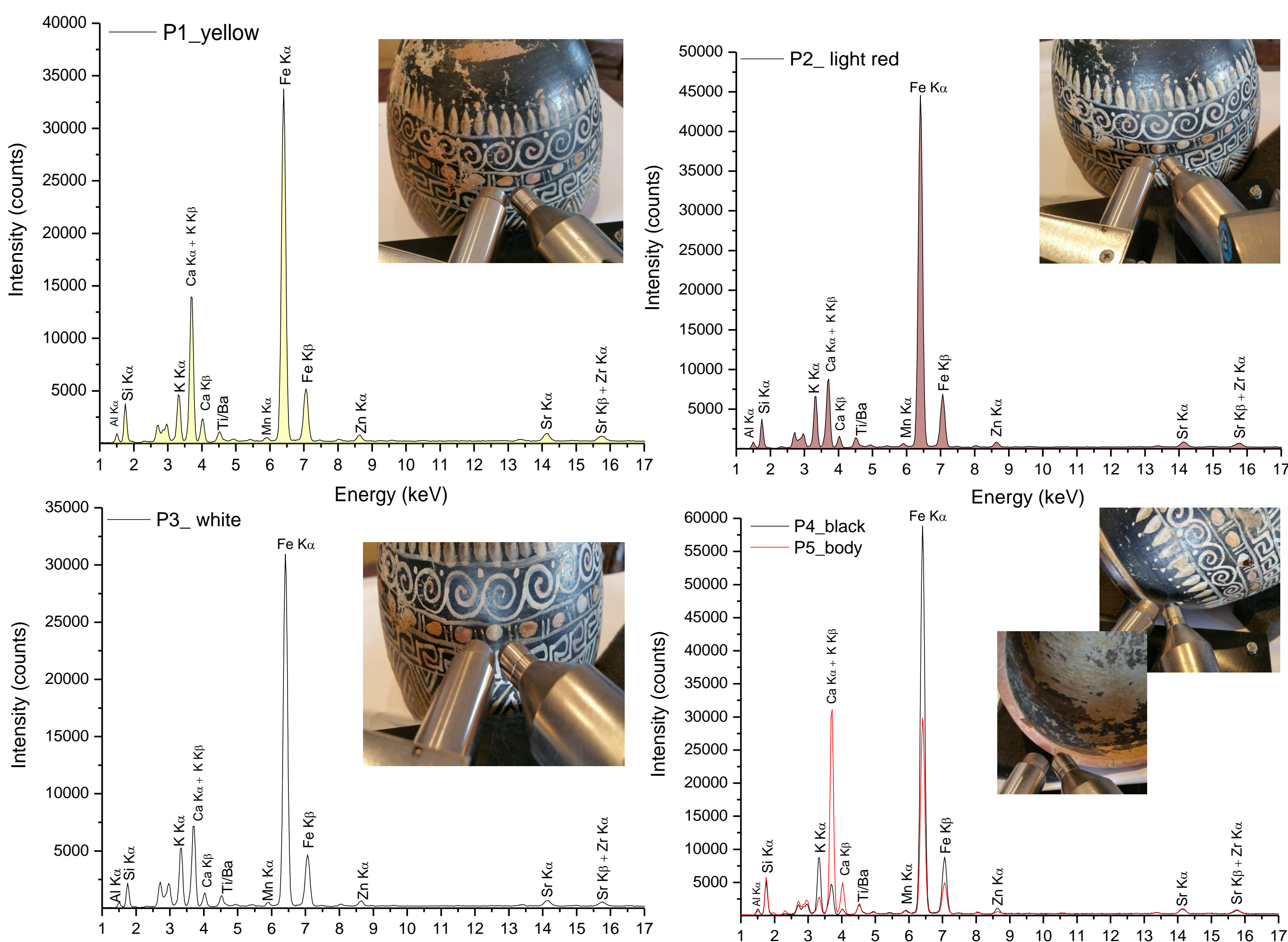
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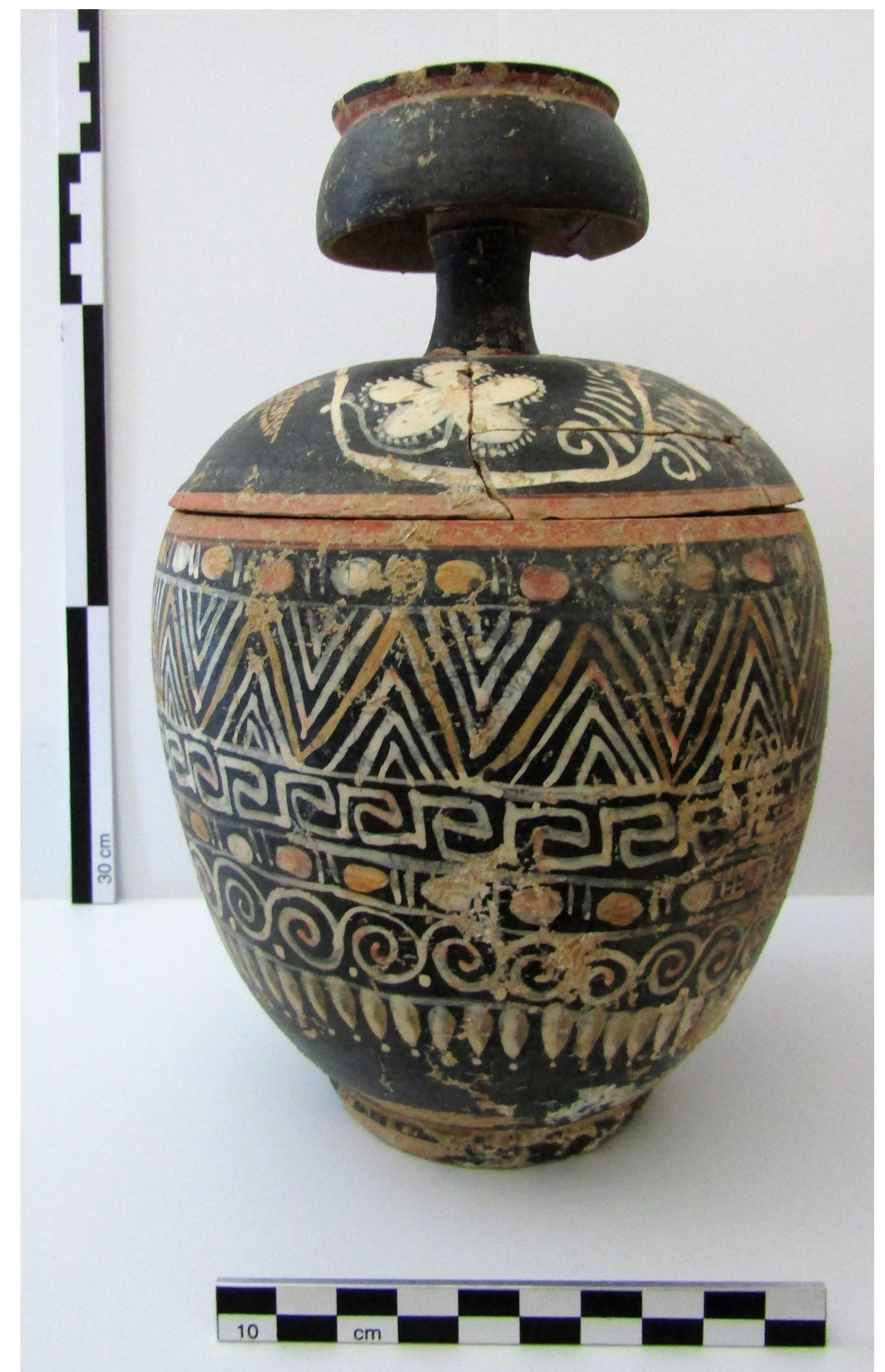
A Hellenistic Gnathia-ware pyxis with lid from Morgantina (Sicily) in a private collection has recently been analysed by XRF portable spectrometer and digital optical microscope in order to investigate pigments and to study the painting technique. This scientific activity was carried out as part of an ongoing multidisciplinary project – “*Morgantina a colori*”, an independent research launched in 2014 by Serena Raffiotta, archaeologist - focusing on the study of polychromy in Greek items from Morgantina, an ancient Greek settlement in central Sicily [1].

Overpainted pottery in the ‘Gnathia style’ (so named after the site of Egnazia, Apulia, South Italy) was very widespread in Southern Italy and Sicily during the Greek hellenistic period, between the 4th and the 3rd century b. C. [2], but nowadays only a few examples are known from Morgantina and almost all were probably imported [3].

The pyxis with lid here presented is the best example in this style and technique from Morgantina and it has no comparisons in the general context of the Hellenistic pottery found in the Sicilian site. The body (height: 13.6 cm) shows a very elaborate polychrome overpainted decoration with the typical Greek ornamental patterns, distributed in six register separated by white stripes: (from the top) a yellow, white and red bead-and-reel line; a frieze of yellow, white and red triangles alternating with white inverted triangles; a white and red meander frieze; a yellow, white and red bead-and-reel line; a line of white and red tendrils and white dots; a vine with leaves and one dot at the tip of each leaf. The lid (diameter: 14 cm) is decorated with a very elaborate twining white vine scroll with four white and red leaves and two bunches of grapes in yellow dots. Some of these decorative patterns can be compared with similar ones decorating a few examples of ‘Gnathia - ware’ from Morgantina [3].



Preliminary XRF results revealed a larger Al, Fe and K content and lower quantities of Ca in the black gloss (P4) in relation to the ceramic body (P5). This evidence, as verified for Apulian ceramics [4], could indicate the use of different clay deposits. Homogeneity of the chemical elements, in XRF spectra, among the overpainted layers (yellow, red and white; P1-P3) is also due to the execution technique: very thin red and yellow layers, constituted by iron-based pigments (ochres or earth), have been applied above the thicker white decoration [4]. Further analytical investigation on sample (XRD, SEM-EDS) will allow to identify the used raw materials and to validate the preliminary similarities found between the Morgantina pyxis and the Apulian production.



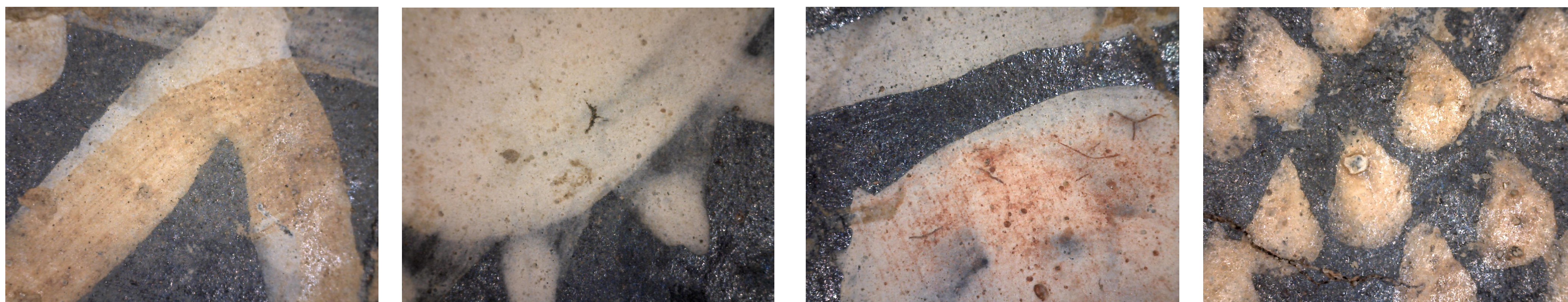
The Hellenistic Gnathia-ware pyxis with lid (total height: 22 cm.)



The typical white, yellow and red overpainted decorations of the polychrome pyxis and of the lid were analysed using an XRF portable spectrometer (Rh target; SD detector; parameters: 35 kV; 80 microA; 60 sec). Moreover, analyses were also carried out on the black gloss surface and the ceramic bulk in order to characterize the contributions of the whole stratigraphy in the acquired XRF spectra. The contextual microscopic observations at high magnifications revealed the succession of application of the layers and documented the conservation state of the red layer, proving it was applied over a white layer, that's typical in the ‘Gnathia pottery’ production. Further investigations can be helpful to understand if, compared to white and yellow layers, the fading of the red layer is due to a different application method or to a greater thickness of the layer itself. Uniformity in terms of materials and technique was found between the pyxis and its lid, confirming they were complementary.

These preliminary results allow to undertake a comparative study, especially with regard to fabrics and production centers, between the ‘Gnathia’ pottery found in Sicily and the contemporary similar production of Southern Italy.

In conclusion, the above results add new data to the research project “*Morgantina a colori*”, by increasing the database of pigments recently detected on various Greek items from the site by the use of portable instruments and non-invasive and non-destructive analyses.



The overpainted decoration by digital optical microscope observations

References

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