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Della Robbia Sculptures in Portugal: neutron techniques applied to provenance issues

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An interdisciplinary study is running in glazed terracotta sculptures ascribed to the Della Robbia workshop and nowadays exhibited at the most significant museums of Lisbon, like the National Museum of Ancient Art, the Calouste Gulbenkian Museum, the National Tile Museum and The Jerónimos Monastery of Belém.
The artworks are mainly glazed terracotta medallions with floral/fruit motifs on the edges and diverse types of centerpieces and also glazed terracotta statues.
Complementing the art historian's research, neutron techniques were used to characterize the ceramic body of several sculptures engaged by Della Robbia and eventually other rival workshops in the late 15th and through the 16th century. The main objective is to better understand the questions and problems deriving from the history, iconography and the artistic work of the main sculptors, particularly the process of their manufacture and assemblage, contributing to a better identification of the history and techniques used by the renowned Della Robbia family.
Micro-invasive sampling in hidden parts of the objects was performed so as not compromise the integrity of the piece. Chemical patterns were obtained by instrumental neutron activation analysis using the Portuguese Research Reactor (Sacavém, Portugal) as neutron source. The chemical analysis was complemented by X-ray diffraction.
Geochemical patterns, especially trace elements, emphasized subtle compositional features within sculptures that together with iconographic art historian studies contribute to Della Robbia workshop characterization. Quartz dominates in general and is associated with gehlenite, diopside, calcite, K feldspars. Plagioclase and hematite may occur in trace amounts. The mineral phases point to firing temperatures within a range of 800°C-900°C and to carbonate rich raw materials.

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