



DOI: 10.5281/zenodo.3583077

PHYSICOCHEMICAL AND CULTURAL STUDY OF COLORING MATERIALS FROM 1st c. AD MAGDALA, LOWER GALILEE

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Received: 12/11/2019

Accepted: 10/12/2019

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ABSTRACT

Archaeological excavations conducted in Magdala in the last decade have recovered a large number of pigments and coloring materials from two main contexts: (1) the first-century synagogue (the oldest one discovered in the region of Lower Galilee), and (2) the market located on the shores of Lake Tiberiades (the Sea of Galilee). The pigments recovered from the synagogue are from the remains of mural paintings preserved there, while the coloring materials recovered from the market are shaped like balls of different sizes. The two main aims of this study are: (1) to conduct the physical-chemical characterization of the remains of the mural painting preserved in the synagogue and the coloring materials found in the market, and (2) to compare the results. To achieve our objectives, we used a multi-technical method based on a combination of optimized physico-chemical analysis techniques for identifying organic and inorganic substances. These comprised microscopic techniques (LM, SEM-EDX), spectroscopic techniques (ATR-FTIR), chromatographic techniques (GC-MS), and others (UV-vis, XRPD). Our results suggest that color in ancient Magdala was used not only for pictorial purposes but also for several others. The components of some of the colored balls discovered in the market, for example, indicate that they had a cosmetic and/or medicinal use, which invites analysis of interesting issues related to customs and everyday life in this first-century Jewish settlement in Lower Galilee.

KEYWORDS: Magdala, Lower Galilee, Jewish culture, archaeology, archaeometry, pigments, medicines, cosmetics
