

Characterization of historical mortars from Alentejo's religious buildings

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ABSTRACT:

Alentejo religious buildings reflect undoubtedly the history and character of this southern Portugal region. These buildings conservation requires a deep knowledge of their masonry's and renders' lime mortars, to evaluate correctly their state of conservation, to avoid progression of pathological situations and to plan efficient interventions, with repair and substitution materials with similar characteristics. In this article we present a synthesis of the main results obtained in the mortars characterization of religious buildings from Alentejo, which include Évora and Elvas Cathedrals, Mértola Mosque and the church of Amieira do Tejo. For each monument, several samples were collected from different sites and a set of tests was carried out, including chemical, mineralogical and microstructural, as well as physical and mechanical tests. The tested mortars correspond to different phases of construction and interventions on the buildings, comprising mainly origin periods from the 12th to the 18th century; hence exhibited significant differences in composition and in application techniques. The obtained results of composition have given important information about the provenance of the materials used, including binder and sand types, and also about decay products and their correlation with the mortar's conservation state, which gave important clues on the repair strategy to adopt.

KEY-WORDS: *Alentejo, characterization, conservation, historic mortars, materials.*