

Calcium phosphate preservation of faecal bacterial negative moulds in hyaena coprolites

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The vertebrate fossil locality of La Roma 2, Spain (Upper Miocene, Late Vallesian, MN10) is characterised by a high abundance of mammalian coprolites, which provide direct clues to the diets and habitats of the organisms that produced them. X-ray diffraction analysis showed a sample of hyaena (cf. *Lycyaena chaereticus*) coprolites to be mostly composed of calcium phosphate. Ultrastructural SEM and TEM studies revealed three successive phases of preservation, including an initial phase of mineralisation that produced microspherulites within a very fine-grained cement. This indicates that most of the calcium phosphate present in the coprolites precipitated rapidly, which in turn facilitated the formation of negative moulds of faecal bacteria within the coprolite matrix.

Key words: Bacteria, hyaena coprolites, structural preservation, taphonomy, Miocene, Spain.

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