



A TESTUDOOLITHIDAE PARTIAL EGG CLUTCH FROM THE MIOCENE OF MADRID

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The Cenozoic fossil record of Testudines is profuse, but almost restricted to osteological remains, with a comparatively scarce palaeological record. We report a partial egg clutch from the Aragonian (Miocene) continental deposits of the Madrid Basin (Spain). It was collected in 2013 during construction works at Plaza de Antón Martín. The preserved specimen comprises the natural external cast of an egg, displaying a small eggshell fragment (egg 1) and two partial eggs (eggs 2 and 3). Eggs are ellipsoidal, with a long axis ranging from 4 to 5.5 cm, and a short axis ranging between 3.5 and 4 cm. Mean eggshell thickness is 420 µm (600 µm in egg 3). The eggshells of eggs 1 and 2 (the natural cast) are almost completely replaced by blocky calcite, only preserving the general morphology of the shell units. Egg 3 preserves phantoms of the radial acicular ultrastructure. Eggshell units are twice as tall as wide, and highly packed. External surfaces are smooth, showing small, funnel shaped pore openings. Inner surfaces show small organic cores and radial acicular ultrastructure partially preserved. We refer them to Testudoolithidae indet. The small eggshell fragment attached to the cast of egg 1 is of particular interest. Approximately half of its surface is covered by several elliptic to circular moat shaped bioerosion structures, ranging from 50 to 400 µm in external radius, and 20 to 250 µm in inner radius. The borings are shallow (few microns deep) and their eccentricity is variable. The relatively large size of the eggs and the Miocene age of the site is congruent with the ubiquitous giant tortoise *Titanochelon*, being the probably egg layer of the studied partial clutch. Further research is needed to confirm this hypothesis, and to interpret the origin of the bioerosion structures observed in the external surface of egg 1.

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