

CERAMAH TEKNIK TECHNICAL TALK

A new sea turtle fossil from the Cretaceous of Morocco: Morphological evolution of sea turtles

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Abstract: Sea turtles are reptiles that have highly adapted to marine life. The oldest known sea turtle is *Santanachelys* from the early Cretaceous of Brazil. Since then, sea turtles have radiated throughout oceans. Although many groups of reptiles including dinosaurs were heavily damaged during the Cretaceous/Tertiary (K/T) mass extinction, sea turtles survived and 8 species are known today.

We report the skull and lower jaw of sea turtle (WUSILS-RHg 494, stored in Waseda University) found from the Maastrichtian (latest Cretaceous) of Morocco. The late Cretaceous–early Paleogene phosphate beds crop out at Ouled Abdoun basin, central Morocco, and are known with the rich marine vertebrate fossil faunas such as mosasaurus, plesiosaurus and sea turtles. Although various sea turtles, including the genus *Osteopygis*, are present in the Paleogene section, only few are known from the Cretaceous beds.

WUSILS-RHg 494 shows a synapomorphy of the superfamily Cheloniioidea; the loss of the foramen praepalatinum. This skull has the following synapomorphies of the cheloniids (family Cheloniidae); the vomer-palatine contact anterior to the choanae, and the V-shaped narrow basisphenoid from ventral surface. The cranial morphology of cheloniid sea turtles such as the triturating surfaces should be changed for their feeding habitats based on extant species. The upper triturating surface of the cheloniid sea turtles generally forms a secondary palate composed of the premaxilla, maxilla, vomer and palatine bones. WUSILS-RHg 494 shows the prominent secondary palate and very acute angle in the snout. Its rather generalized development of the secondary plate as a cheloniid suggests its omnivorous diet. The foramen palatinum posterius is lost as in *Osteopygis* and Cenozoic cheloniids. The prefrontal is well retracted from orbital margin as common in cheloniids such as *Argillochelys africana*, *Pacificchelys urbinai* and extant *Caretta caretta*. The dentary of the lower jaw shows no symphyseal ridge on the triturating surface. The lower jaw has no surangular process unlike modern cheloniids.

These characters clearly show that WUSILS-RHg 494 is a new cheloniid taxon, and this is important for better understanding of the morphological adaptation of sea turtles during the Cretaceous Period.