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The dentition of megalosaurid theropods

Christophe Hendrickx, Octávio Mateus, and Ricardo Araújo
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Theropod teeth are particularly abundant in the fossil record and frequently reported in the literature. Yet, the dentition of many theropods has not been described comprehensively, omitting details on the denticle shape, crown ornamentations and enamel texture. This paucity of information has been particularly striking in basal clades, thus making identification of isolated teeth difficult, and taxonomic assignments uncertain. We here provide a detailed description of the dentition of Megalosauridae, and a comparison to and distinction from superficially similar teeth of all major theropod clades. Megalosaurid dinosaurs are characterized by a mesial carina facing mesiolabially in mesial teeth, centrally positioned carinae on both mesial and lateral crowns, a mesial carina terminating above the cervix, and short to well-developed interdenticular sulci between distal denticles. A discriminant analysis performed on a dataset of numerical data collected on the teeth of 62 theropod taxa reveals that megalosaurid teeth are hardly distinguishable from other theropod clades with ziphodont dentition. This study highlights the importance of detailing anatomical descriptions and providing additional morphometric data on teeth with the purpose of helping to identify isolated theropod teeth in the future.

Key words: Theropoda, Tetanurae, Megalosauridae, dentition, teeth, morphometry.

Christophe Hendrickx [christophe.hendrickx@hotmail.com] and Octávio Mateus [omateus@fct.unl.pt], Universidade Nova de Lisboa, GeoBioTec (formerly CICEGe), Departamento de Ciências da Terra, Faculdade de Ciências e Tecnologia, Quinta da Torre, 2829–516, Caparica, Portugal; Museu da Lourinhã, 9 Rua João Luis de Moura, 2530–158, Lourinhã, Portugal; Ricardo Araújo [rmaraujo@smu.edu], Huffington Department of Earth Sciences, Southern Methodist University, Daniel Avenue 75275-0395, Dallas, Texas, USA; Museu da Lourinhã, 9 Rua João Luis de Moura, 2530–158, Lourinhã, Portugal.

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