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A comparison of teeth in Tithonian, Late Jurassic, predatory actinopterygian fishes from Owadów-Brzezinki Lägerstatte and its palaeoecological implications

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The Owadów-Brzezinki palaeontological site is known for its very well-preserved fossils of Late Jurassic vertebrates, such as numerous fossil fish teeth and occasional dental bones. Some of these represent well-studied taxa, including the most common large predatory fish, with notable examples of caturoids (such as *Strobilodus* sp.) and pachycormids (*Orthocormus teyleri*). The current study presents the microstructure and histological features of the teeth of the selected specimens of the above taxa. They are determined through examinations of tooth cross-sections under thin microscopic observations and by the usage of scanning electron microscopy (SEM). The above inspections, combined with aspects of external tooth morphology, allowed us to determine the palaeoecology of the aforementioned taxa of large predatory fish. It is concluded that examined Caturoidea displayed a rather homogenous dentition belonging to the intermediate cut/slash guild, characterized by an internal orthodentin histology with prominent incremental Andresen growth lines of differing form, indicating living in a highly variable, unstable environment. The teeth of pachycormid specimen (*O. teyleri*) can be characterized as having denteon-based orthodentin histology, with a rapid rate of tooth eruption and a heterodont, elongated specialist dentition of the piercing guild. The observed structural differences in the teeth suggest a different niche distribution between the taxa studied. They help to explain how these predatory ray-finned fishes may have coexisted both in the local environment of the Owadów-Brzezinki and in the wider, more global context of Late Jurassic shallow marine environments. In addition, the tooth samples are characterised by pronounced surface bioerosion with traces of *Mycellites ossifragus* durophagous fungal activity, indicating an intense bioerosion caused by these microorganisms after the death of the fish.

Key words: Actinopterygii, Caturoidea, teeth, predatory, microstructure, histology, niches, Late Jurassic, Poland, Owadów-Brzezinki Quarry.

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