



## Morphometrics of teropodomorph isolated teeth material from Bauru Basin (Upper Cretaceous, Southeast Brazil)

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The theropod material of the Bauru Basin consists mainly of isolated teeth, bone elements being rare, generally isolated and fragmented. The best known theropod of the unity is *Pycnonemosaurus nevesi*, an abelisaurid described based on some fragmented elements. An ungeal phalanx, which possesses features found in derived maniraptorans, and a scapula associated with non-avian maniraptorans have also been recovered from this basin. The rest of the bone material collected does not show diagnostic features. Regarding the isolated teeth, many studies have been conducted to increase the taxonomic knowledge of the Bauru theropods. These works, however, have fundamentally considered qualitative (or non-measurable) characters, like general shape or presence/absence of structures. Under these circumstances the material showed affinities to Abelisauroidae, Carcharodontosauridae and Maniraptora. Nevertheless, the evaluation of dental characters from theropod dinosaurs in terms of taxonomic identification remains controversial. Although the methodology is considered relatively efficient concerning small theropods, its effectiveness on other theropod groups is questionable. The dental morphology can vary by position in the mouth and some characters considered as diagnostic, could be, in fact, shared among taxa. The present work aimed, based on a combination of measures of the teeth (crown length, base length and width, density of denticles and derived variables like, squatness and apex location with respect to base), to obtain taxonomic sorting of the isolated material, according to a quantitative methodology. By means of multivariate analysis it was possible to recognize statistically distinct groups. We used measures of teeth associated with cranial material already been published of a variety of theropod groups, to compare with our data. In some cases, similarities could be found, while other morphotypes were completely different. We believe that this methodology offer a more reliable tool to ascertain taxonomic relationships of Bauru Basin isolated teeth material. It's an attempt to make its fossil record more informative; its interpretation better founded, and perhaps standardized.

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