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## Taxonomic reappraisal of the sphagesaurid crocodyliform *Sphagesaurus montealtensis* from the Late Cretaceous Adamantina Formation of São Paulo State, Brazil

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### Abstract

*Sphagesaurus montealtensis* is a sphagesaurid whose original description was based on a comparison with *Sphagesaurus huenei*, the only species of the clade described to that date. Better preparation of the holotype and the discovery of a new specimen have allowed the review of some characteristics and the identification of several synapomorphies of *S. montealtensis* with the genus *Caipirasuchus*: presence of antorbital fenestra; external nares bordered only by the premaxillae; premaxilla with four teeth and one diastema (between the 3<sup>rd</sup>–4<sup>th</sup> teeth); one diastema between the 4<sup>th</sup> premaxillary tooth and the 1<sup>st</sup> maxillary tooth; dentary with ten teeth and two diastemata (between the 4<sup>th</sup>–5<sup>th</sup> and 5<sup>th</sup>–6<sup>th</sup> teeth); nasal with a groove parallel to the suture with the frontal bone; nasal long, with an acute anterior margin touching anterolaterally the premaxilla, jugal is a straight bar in the lateral view; frontal is longer than wide; a dorsoventrally expanded and vertically oriented quadrate with a groove separating the medial and lateral condyles; the frontal has a discrete sagittal crest; dentary with six posterior sphagesauriform teeth and four anterior conical teeth, the first three are the smallest of the series and the fourth is slightly laterally compressed. The referral of *S. montealtensis* to the genus *Caipirasuchus*, as *Caipirasuchus montealtensis* comb. nov. is proposed here, based on the new taxonomic observations and the results of a phylogenetic analysis.

**Key words:** *Caipirasuchus montealtensis*, Sphagesauridae, Bauru Basin

### Introduction

The Bauru Basin (Fig. 1) has been a significant source of Cretaceous crocodyliforms, with tens of individuals discovered and approximately twenty formally described species distributed among Notosuchia, Peirosauridae and Trematochampsidae (Price 1945, 1950, 1955, 1959; Carvalho & Bertini 1999; Campos *et al.* 2001, 2011; Carvalho *et al.* 2004, 2005, 2007; Nobre & Carvalho 2006; Nobre *et al.* 2007; Andrade & Bertini 2008; Marinho & Carvalho 2009; Iori & Carvalho 2009, 2011; Nascimento & Zaher 2010; Iori *et al.* 2011; Kellner *et al.* 2011; Montefeltro *et al.* 2011; Iori & Garcia 2012; Marinho *et al.* 2013).

The Crocodyliformes comprise the most diverse group among the tetrapods of the Bauru Basin, with taxa smaller than one meter in length to others exceeding four meters, different feeding habits and the possible occupation of several niches including terrestrial predators, herbivores and omnivores and semi-aquatic predators (Price 1945, 1950, 1955; Carvalho & Bertini 1999; Iori & Carvalho 2009; Marinho & Carvalho 2009; Kellner *et al.* 2011; Iori & Garcia 2012; Marinho *et al.* 2013). This peculiar crocodyliform fauna is important due to its potential correlation with other Gondwanan landmasses and application for paleoclimatic, paleoenvironmental and paleobiogeographic assessments. (Nobre *et al.* 2008; Carvalho *et al.* 2010). Sphagesaurids have a unique dentition and a complex masticatory mechanism, revealing possible herbivorous or omnivorous habits (Pol 2003; Andrade & Bertini 2008; Iori & Carvalho 2011).