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THEROPOD DINOSAUR FOOTPRINTS FROM THE LOWER CRETACEOUS OF THE BOTUCATU FORMATION, PARANÁ BASIN, SÃO PAULO STATE, BRAZIL

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The Dinosaurs footprints and tracks are quite common in the Eocretaceous aeolian sandstones of the Botucatu Formation (Paraná Basin) in the state of São Paulo, Brazil. The São Bento quarry, located in the municipality of Araraquara (coordinates 21°49'03.4" S; 48°04'22.9"W), reveals an outcrop of sandstones at the top of the Botucatu Formation which constitutes a section of large dune some 20 m in height and 100 m in length, with a foreset slope of 29° to the S-SW. Slabs of sandstone with theropod dinosaur footprints and tracks were identified and extracted. Four morphotypes were identified, depending on interdigital angles, the ratio of length to width of the footprint, and form of the digits. All of the footprints found were those of tridactyl mesaxonic digitigrades. The first morphotype was Coelurosauria, with interdigital angles ranging from 20-30°, with a total divergence between the digits II and IV of 40-50° and a footprint length/width ratio of approximately 1.7. The digits III and IV showed a slight inward curvature, while the digit II was practically straight, and aligned with the footprint axis; the ratio of the trackway width to the footprint width was approximately 1.6. Carnosauria, the second morphotype, revealed an interdigital angle ranging from 30-40° and a ratio of length to width of the footprint of 1.1, with a divergence between the digits II and IV of 50-70°. The digit III was practically straight, and aligned with the orientation of the footprint, while the digit II was longer than the IV. The third morphotype appears to be a variation of the Carnosauria, but with interdigital angles ranging from 35-50° and a divergence between digits II and IV of 60-80°. The ratio of footprint length to width was approximately 1.0, with the digit III highly curved in relation to the footprint axis, while the digit II curves in the same direction as digit III. The fourth morphotype seems to be another variation of a Carnosauria, with interdigital angles ranging from 30-40°, and a divergence from the digits II and IV of 50-70°. The ratio of length to width of the footprints was approximately 1.2, while that of the trackway width to the footprint width was also approximately 1.2. All three digits are inward curved in relation to the orientation of the footprint axis. The two latter morphotypes are apparently variations of the second, but reflecting effort and direction of dislocation (movement) of the dinosaurs on an inclined plane and the speed developed during the passage across the dune. Moreover, some of the footprints are undertracks, which modifies morphological differences of the digits. According to Leonardi *et al.*, (2007) the tracks reveal preferential directions, with 80% moving in a direction between 300-330°, although some were going in the opposite direction (120-150°). The dinosaurs of the Botucatu paleodesert were apparently crossing a large transverse dune, possibly in search of food and/or water.

Leonardi, G.; Carvalho, I.S. & Fernandes, M.A. 2007. The desert ichnofauna from Botucatu Formation (Upper Jurassic - Lower Cretaceous), Brazil. In: Ismar de Souza Carvalho... [et alii]. (Eds.). *Paleontologia: Cenários de Vida*. 1 ed. Rio de Janeiro: Interciência, v. 1, p. 379-391.