THE PTEROSAURS FROM THE ARARIPE BASIN: THREE DECADES CONTRIBUTING TO THE STUDY OF FLYING REPTILES

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Since the first pterosaur material was unearthed from the calcareous nodules of the Romualdo Member (upper stratigraphic unit of the Santana Formation; Albian) in 1971, between 350 to 400 specimens have been found to date. Despite known for only three decades, the contribution of the material from this Lagerstaette to the study of those flying archosaurs is remarkable. Pterosaurs from this deposit are already the most diverse group of Mesozoic fossil reptiles found in Brazil so far. They revealed the presence of distinct clades, which are now been recognized and found in other deposits (e.g., Anhangueridae). Due to their exquisite preservation, with most bones found in three-dimension without signs of distortion, new information regarding anatomical features of those volant reptiles are being obtained such as detailed information about the braincase (somewhat bird-like in organization but reptile-like in size) and ankle structure ("crocodile-reversed"). The studies of the pes, hindlimbs, and pelvis have provided additional information regarding terrestrial locomotion, supporting the quadrupedal hypothesis. Even three-dimensionally preserved soft tissues, with phosphatized blood vessels and muscle fibers, have been found and have the potential to provide new insights regarding some paleobiological questions regarding those flying archosaurs.

All those features make the Romualdo Member one of the most significant pterosaur Lagerstaette known whose preservation is paramount for paleontological studies.