USING ORGANIC ACIDS FOR THE PREPARATION OF TETRAPODS FROM THE ARARIPE BASIN (NE-BRAZIL)

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Chemical preparation has been used in fossil for decades. The results differ depending on the matrix that surrounds the specimen and there is no single method that could be used in all cases. The consequence was the development of various techniques, most not published. Here I present the detailed procedures of the employment of organic acids in the preparation of fossils tetrapods preserved in the calcareous concretion of the Santana Formation (Romualdo Member, Aptian-Albian) of the Araripe Basin that was previously developed by A.W.A. Kellner.

The organic acid used in this technique is formic acid (HCOOH) that dissolve the major component of the nodule: calcium carbonate. Since this acid also attacks the bone (formed by calcium phosphate), the application of this technique is only possible because the reaction with calcium phosphate is much slower than with calcium carbonate. The specimen is further neutralized and after drying, all parts of the fossil that were exposed are protected by a thin layer of paraloid or acriloid (=acrylic resin). Although this layer provides a protection for the exposed part, it should be noted that the acid does attack this acrylic resin, but at a slower rate than the calcium carbonate. Those procedures are repeated until the desired level of preparation is achieved. This technique was successfully employed in the preparation of dinosaurs, turtles, and pterosaurs, revealing some very fine morphological details that could not be otherwise prepared by mechanical preparation. It should be noted that, along with the preparation plan of the fossil, the protection part is crucial and, despite the good results achieved so far, efforts have to be made to find better coating substances.