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Preservation technique for fossil fish and leaf impressions in papyraceous shale, from the Quiricó Formation, Lower Cretaceous from São Francisco basin, Sate of Minas Gerais, Brazil



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It is presented herein a preparation technique for papyraceous shale with important occurrences of the fish species *Dastilbe moraes* Silva Santos, 1995 and leaf impressions collected in a Quiricó Formation outcrop, Areado Group, Lower Cretaceous from São Francisco basin, located in Painas Stream, São José Farm, Varjão De Minas County, Minas Gerais State, Brazil. *Dastilbe moraes* Silva Santos, 1995 is restricted to Early Cretaceous formations, and is commonly attributed to limnic paleoenvironment. Its type-locality is the Lower Cretaceous from Presidente Olegário County, Minas Gerais State, however it occurs in the Quiricó Formation, in layers of finely laminated shale just below thin evaporite layers, making up a rich preservation of adults and young specimens and associated with them there are leaf impressions. The layers of finely laminated shale, also known as papyraceous shale due to its paper like texture, are fragile and brittle, very hard to manipulate and preserve, also the fossil record is best visible when the rock is wet, therefore its study outside of the outcrop site is difficult. Different methods of preservation were tested, and the best technique for the preservation and study of *Dastilbe moraes* and leaf impressions in the papyraceous shale was applied.

Two types of papyraceous shale layers were collected: paper like layers that were peeled and stored in plastic bags on top of a hard surface and were kept wet, in order to keep the material from breaking; and plates of shale, that were more resistant, also stored in plastic bags. Different techniques were used on the samples, but both types were always kept on flat surfaces and on horizontal, to keep them from breaking.

The paper like layers were glued to transparent glass slabs, in order to keep the material steady and protected, with the surface bearing the fossil upturned, and the surface without the fossil facing the glass. The used glue was in powder (MOWITAL B45H), dilutable in alcohol 98% therefore if necessary the sample might be removed from the glass, and transparent for better visualization. After one whole day, the thinner sheets were completely glued to the glass, whilst the thicker sheets had their edges curved and not flat on the glass. After the samples were glued, it was applied one coat of wood varnish to the upturned surface bearing the fossil, and after it dried, another coat was applied. With two coats of varnish, the surface became shiny, creating a wet appearance, therefore the fossil record was visible and well protected. With the paper like layers glued to transparent glass and covered in varnish, it became possible to study the fossils, and manipulate the rock without breaking the sheets or compromising the fossil record. The plates of shale, because they were more resistant, were not glued to a glass surface, instead the two coats of varnish were applied to both surfaces: first both coats were applied to one surface, and when it was dried, both coats were applied to the other surface, giving a wet appearance to the whole plate.

With the techniques presented, the papyraceous shale can be studied outside of the outcrop site, and especially the leaf impressions can be better analysed. There is a possibility that within this leaf impressions there can be seeds preserved as well, and if that is correct, it will be an occurrence of angiosperms in the Lower Cretaceous from the São Francisco basin.

