A STUDY OF JURASSIC PLANT FOSSILS IN TABBOWA SEDIMENTS, SRI LANKA

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ABSTRACT

Plant fossils of Jurassic Age (213-144 Million years ago) are known to occur in a few small isolated sedimentary basins in the Northwestern part of Sri Lanka. One such basin known as the Tabbowa basin, situated in the Puttalam district was investigated in the present study for understanding and documentation the Jurassic flora, their Palaeo-botanical environment and evolutionary trends.

Examination of plant and leaf morphology and the taxonomical characteristics were used as study tools together with comparison of features described by previous workers from only a limited number of earlier studies at the same location and from other parts of the world.

During the present study it has been possible to identify and document many more morphological features than identified in any previous study at Tabbowa.

Fossil plants in Tabbowa are preserved in mudstone. The other sedimentary rocks; sandstone and siltstone found in the basin did not show any fossil bearing evidence in the present study. In the mudstone, plant leaf and stem fragments have been well preserved as imprints. Probably, because the preservation potential is always high in fine grained sediments such as mudstone and claystone.

During the present study it was possible to identity leaves and fronds of nine species namely *Cladophlebis zeylanica*, *Cladophlebis* sp., *Sphenopteris* sp.,

Eusphenopteris sp., *Nilssonia* sp., *Ptilophyllum* sp., *Otozamites* sp., *Taeniopteris* sp. and *Glossopteris* sp. belonging to two divisions, Pteridophyta and Cycadophyta. Two fossilized stem fragments of higher plants were also found. The characteristic features of these samples indicate that they probably belong to the Gymnospermae.

Glossopteris species and stem fragments have not been properly identified previously from Tabbowa sediments. Therefore, they were identified for the first time in Tabbowa during the present study. The species *Cladophlebis* sp. can be related to the present day living flora whereas *Sphenopteris* sp., *Ptilophyllum* sp., *Nilssonia* sp., *Otozamites* sp. and *Taeniopteris* sp. are now extinct.

The identified fossilized flora further reveal that the paleo-environment in, which the plants grew is a warm terrestrial environment though much cooler sub environments have prevailed probably under huge shady trees supporting survival of some species. Further, the evolutionary leaf changes of the studied flora appear to show the gradual environmental changes that have occurred during the period in which the plants survived.