



Carbonate coatings over plant twigs from the Gyeongsang Basin, Korea

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The sedimentary sequence of the non-marine Cretaceous Gyeongsang Basin, Korea contains a great number of elongated, rod-like structures, which are characterized by concentric and stromatolitic lamination. The original, branched gross morphology of the ancient plant twigs is often preserved, and remains of plant tissues are well preserved in the central parts of the rod structures that are now filled with siliciclastic sediments following degradation of the original plant materials. They are, therefore, interpreted as stromatolitic algal and/or microbial encrustations over dead or living plant twigs, which formed through concentric carbonate precipitation by epiphytic algal or bacterial photosynthesis. Varied filamentous fossils were found in the organic-rich layers, which are calcified tiny tubes characterized by brown micritic walls and light central parts composed of sparite. Size of filament diameter ranges from 1 to 44 μm . Based on size of diameter, absence or presence of branching pattern, and/or their ecological roles in the formation of stromatolites, the filaments were classified into two groups: cyanobacteria (6 μm -8 μm) and green algae (26 μm -29 μm). The cyanobacteria must have played a key role in the formation of rod-shaped stromatolites, while green algal filaments were auxiliary stromatolite-builders.