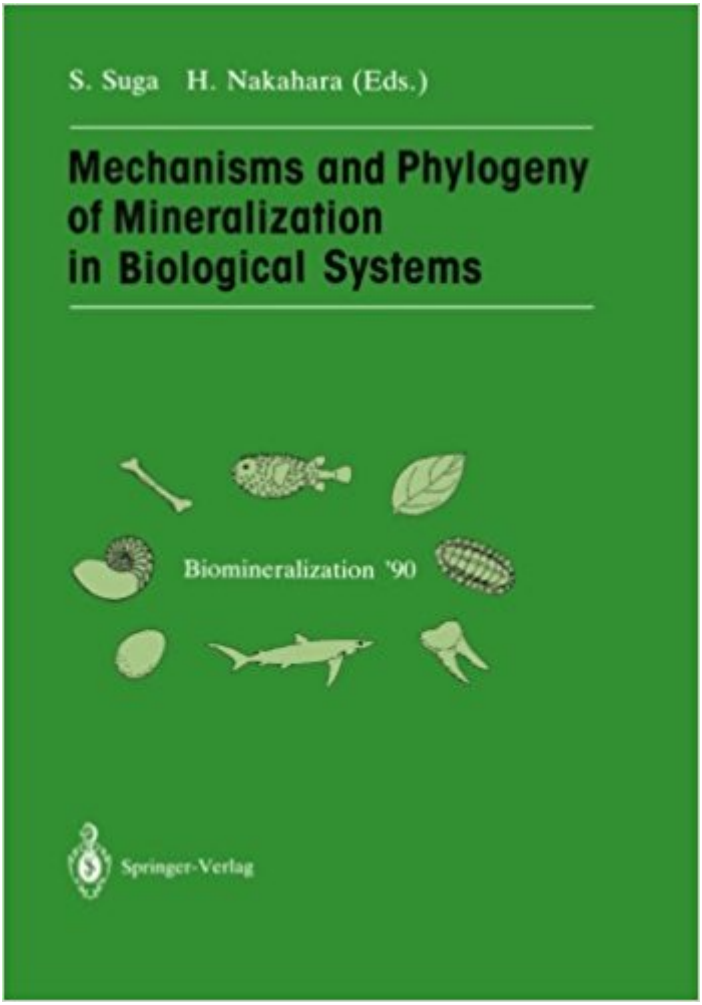
Mechanisms And Phylogeny Of Mineralization In Biological Systems: Biomineralization â€™90



Synopsis

Various kinds of mineralization have been found in many biological systems. Investigations made at a microscopical level using various sophisticated analytical methods and using principles developed in different fields have clarified their mechanisms very much. Sometimes, very similar phenomena have been found in the mineralized tissues of completely different biological systems. Compilation and comparative investigations of such findings obtained from the many specimens systematically collected contribute a great deal to an understanding of the crucial mechanisms and significance of biomineraliÂ- zation which originated in very primitive organisms and remain in advanced ones. Previously, the functional significance of mineralized tissues was considered mainly from an anatomical point of view based upon their morphological and structural features. However, the recent advance of investigations has made it possible to interpret the funcÂ- tional significance of biomineralization not only from local and mechanical points of view, but also from a systemic and phylogenetic point of view. It is also well-known that biomineralization has contributed in various ways to geological and oceanographical conditions of the environment in which the organisms were living. During this process, the mechanisms of biomineralization may have evolved to maintain harmony between organisms and their environments.

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