

## ALLOMETRIC ASPECTS OF FRUSTULAR MORPHOLOGY IN DIATOMS

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Allometry, in the general sense, describes how the morphological, physiological, and ecological traits of organisms change with size. This presentation is focused on the morphology of diatom frustules, so we use the more traditional meaning of allometry, which is the relationship between body size and shape (Huxley 1932). Allometric relationships can be studied at different levels: ontogenetic allometry is related to the growth of an individual, static allometry analyses within-population differences among individuals that are at the same ontogenetic stage, evolutionary allometry examines differences between species and other taxa (Cock 1966). It has long been known that diatoms change their shape as their size diminishes (Geitler 1932), and these profound ontogenetic changes may confound species delimitation. However, only rarely have such ontogenetic-allometric patterns been quantified. Moreover, it is difficult to differentiate between static and ontogenetic allometry in field populations of diatoms, while diatoms in cultures are prone to shape changes caused by artificial growing conditions. Nevertheless, considerable progress has been made recently in describing allometric patterns in diatoms in quantitative terms and understanding their causes. In this presentation we will review concepts and techniques used in studies of allometric relationships in diatom morphology. We will also discuss the application of allometry in taxonomic, ecological, and evolutionary studies of diatoms.

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