Elemental Ratios

The main elements composing life as we know it are carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur (CHNOPS). Enrichments of these compounds in a sample could be indicative of biological activity, and some of these elements can display remarkably stable ratios both in living systems and the environments they occupy, such as the well-known Redfield ratio of C:N:P=106:16:1. In addition, biological activity can affect the concentrations of trace metals in the environment, and organisms can generate patterns of trace metal abundances that reflect specific aspects of their biochemistry, such as the metallome requirements of methanogenesis (Cameron et al., 2012).