Abundance Distribution of Compounds

Living systems utilize only a small subset of monomers (e.g., amino acids, sugars, fatty acids) to synthesize more complex polymers. The relative abundance of each monomer within that subset depends on the structure and functionality of polymers, which are the result of evolutionary adaptations. In contrast, when the same monomers are produced abiotically their relative abundance is a function of their energy of formation, so smaller molecules tend to dominate. The different patterns in the relative abundance of molecules within a certain class of compounds can therefore be used to discriminate biotic sources from abiotic ones (Dorn et al., 2011).