



Phytoliths: a terrestrial botanical dataset for palaeoenvironmental reconstructions

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Phytoliths originate by physiological deposition of opal silica within the cells and the intercellular spaces of many higher plants.

Soluble silica, in the form of monosilicic acid (H_4SiO_4), is absorbed from soil water and it is deposited by mechanisms that seems to be under genetic and metabolic control. However, the level of phytolith production is related to a number of factors such as the taxonomy (some plants produce phytolith while others do not), the climate of growth and the availability of water in the soil (rate of evapotranspiration).

This characteristics, together with durability and wide spread, in turn make phytoliths a very valuable record of vegetation and climate that is preserved in ancient sediments and palaeosols. The study of phytoliths from sedimentary sequences (both terrestrial and marine) can thus help in the reconstruct past landscapes and climates.

The presentation reviews the different approaches (taxonomic, ecological, isotopic) to phytolith analysis, also using examples from ongoing research in South America and Africa, as well as new experimental approaches.