

Marine dinoflagellate cysts as tools in palaeoecology

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Dinoflagellates form a large group of flagellate protists with about 1,700 marine species (free-living as well as benthic) and about 220 described from freshwater (Taylor *et al.*, 2008). Some dinoflagellates produce a resting stage, called the cyst or dinocyst, as a part of their life cycle (Dale, 1983). These cysts often are well-preserved as microfossils in the sediments, depending on their geochemical composition (e.g. Bogus *et al.*, 2014). Dinocysts are excellent palaeoecological indicators: both dinocyst assemblages and their morphological variations have been shown to reflect changes over time in temperature, salinity, ice cover and productivity as well as industrial pollutants and coastal proximity (e.g. Dale, 1996).

Here I will show several examples of the palaeoecological importance of these dinocysts. Firstly I will show how the morphological variations can be used to reconstruct salinity in the Holocene Black Sea (Mertens *et al.*, 2012). Secondly, I will highlight the spectacular discovery of living cysts of *Dapsilidinium pastielsii* in the Indo-Pacific Warm Pool, which served as a refuge during glacial times (Mertens *et al.* 2014). Thirdly, I will briefly discuss the importance of cysts in the toxic species *Pyrodinium bahamense* (Mertens *et al.*, 2015).

References

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