



Mesozoic plants in palaeo-atmospheric and climate change research

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Plants typically have longer temporal lineages and are more resilient to ecosystem perturbations than animals, often undergoing mostly turnover of taxa when animals suffer mass extinctions. This makes plants highly suitable to track environmental changes across intervals of ecological upheaval, since the same taxa can often be recorded before, during and after the mass extinction event occurred. Plant leaf cuticle in particular is a powerful tool when researching the causes and consequences of mass extinctions episodes in the past, since these are highly resistant to taphonomic processes, and can almost always be obtained from sediments as leaf fragments, even when visible macro-leaf fossils are missing. Fossil leaves can be utilised for isotope analysis, $p\text{CO}_2$ reconstruction and may give indications about SO_2 air pollution in the past. Since most mass extinction events are thought to be associated with greenhouse gas-driven global warming, in some cases in combination with transient global dimming/cooling episodes, this information is extremely pertinent. Here, a few examples will be listed of how fossil plants have tracked the pace and mechanisms behind two major Mesozoic mass extinctions - at the Tr-J and K-Pg boundaries.