Investigating biogeochemical signatures in lichens, soil, bark and historical herbarium samples as indicators of global climate change

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Biogeochemical signatures are being compared in one of the commonest lichens in Europe, *Parmelia sulcata*, with those in soil, bark and historical lichen samples spanning a 200-year period. Previous studies investigated element concentrations and isotopic signatures (δ34S and δ15N) in different stages of the *Parmelia* life cycle and bark samples from Burnham Beeches, an area of European Conservation significance [1,2]. The present study aims to assess multi-element composition in lichens collected over a 200-year period as an indicator of global climate change.

As far as we are aware this is the first study investigating historical lichen samples collected over such a long time span (200 years to present). Higher Mn concentrations were reported in *Parmelia sulcata* from recent collections at Burnham Beeches than from other studies [2]. Studies in coniferous forests in US and Germany confirm Mn species may limit lichen diversity and health where Mn was considered to be primarily soil derived [3]. Biogeochemical processes, current atmospheric conditions and the former pollution legacy must be understood to conserve sensitive epiphytes and for biomonitoring.

References

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