

Key roles of humic substances in global biogeochemical cycles

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Microbial reduction of humic substances (HS) is a respiratory process involving extracellular electron transfer, which has significant impact on the transformation and fate of inorganic and organic contaminants in organic rich environments. The present work aims to provide an overview on the new scientific advances revealing novel roles of HS in key biogeochemical cycles. Anaerobic methane oxidation (AOM) linked to microbial reduction of HS [1] will be discussed. Also, the new findings indicating the potential role of HS on mitigating emissions of both methane and carbon dioxide in wetlands will also be examined [2]. Regarding the N cycle, the novel humic dependent-anaerobic ammonium oxidation [3] process will be presented and its potential role in marine N cycle will be discussed. Moreover, recent findings indicating the potential role of HS on mitigating the emissions of nitrous oxide from wetlands will also be presented [4].

References

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