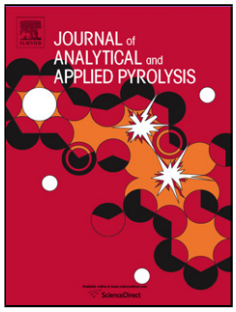

Title: Comparison of thermochemolysis and classical chemical degradation and extraction methods for the analysis of carbohydrates, lignin and lipids in a peat bog

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Comparison of thermochemolysis and classical chemical degradation and extraction methods for the analysis of carbohydrates, lignin and lipids in a peat bog.

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Highlights

- Comparisons of thermochemolysis with TMAH data with data generated from the conventional molecular characterisation procedures must be done carefully because of the different mechanisms involved.

- Thermochemolysis should be viewed and used as a pertinent and a complementary method for the analysis of the most common organic pools encountered in soils and recent sediments

- Thermochemolysis is a rapid and powerful tool for the molecular characterisation of various classes of soil organic compounds such as lignin, carbohydrates and lipids making this technique suitable for routine analyses.

ABSTRACT

Published data from different techniques used in the analysis of the main biomolecular families (lignin, carbohydrates and lipids) in 100 cm depth peat cores from the Sagnes peat bog (Limousin, France) were compared. Thermochemolysis using tetramethylammonium hydroxide was compared with the classical chemical degradation methods for lignin (CuO-NaOH oxidation) and carbohydrates (acid hydrolysis with HCl), and the Bligh and Dyer extraction method for lipids. Differences observed between the methods are mostly due to the different degradation mechanisms involved in each method. For lignin, the selective cleavage of β-O-4 aryl ether bonds during thermochemolysis allowed identification of a more