

## Accepted Manuscript

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

Authors: K. Younes, L. Grasset



PII: S0165-2370(17)30896-3  
DOI: <https://doi.org/10.1016/j.jaap.2018.05.011>  
Reference: JAAP 4330

To appear in: *J. Anal. Appl. Pyrolysis*

Received date: 5-10-2017  
Revised date: 24-5-2018  
Accepted date: 25-5-2018

Please cite this article as: Younes K, Grasset L, Comparison of thermochemolysis and classical chemical degradation and extraction methods for the analysis of carbohydrates, lignin and lipids in a peat bog, *Journal of Analytical and Applied Pyrolysis* (2018), <https://doi.org/10.1016/j.jaap.2018.05.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

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

K. Younes, L. Grasset\*

Université de Poitiers, IC2MP, UMR CNRS 7285, 4 rue Michel Brunet, TSA 51106, 86073 Poitiers Cedex 9, France

\* Corresponding author:

Tel.: +33 5 49 45 37 59

Fax: +33 5 49 45 35 01

E-mail address: laurent.grasset@univ-poitiers.fr (Laurent Grasset)

### 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  $\beta$ -O-4 aryl ether bonds during thermochemolysis allowed identification of a more

Download English Version:

<https://daneshyari.com/en/article/8954826>

Download Persian Version:

<https://daneshyari.com/article/8954826>

[Daneshyari.com](https://daneshyari.com)