

## Dissolved organic carbon and soil respiration release in undisturbed columns from SE Spain

A. BÜYÜKKILIÇ YANARDAĞ\*, M. GÓMEZ-GARRIDO, M. D. ESTÉVEZ RODRÍGUEZ, I. H. YANARDAĞ AND A. FAZ CANO

Universidad Politécnica de Cartagena, Agrarian Science and Technology Department Research Group: Sustainable Use, Management and Reclamation of Soil and Water, Murcia/España (\*correspondence: ab16@alu.upct.es)

When pig slurries (PS) are applied to agricultural fields at different rate, large amounts of carbon can be introduced into soils. Better knowledge land application of pig slurry is important to know influence on carbon in leaching experiment. This study assessed the leaching potential of carbon cycle after an intensive farm pig manure at rates of control, single, triple doses are applied and investigated 'how is the relation between leaching of dissolved organic carbon (DOC) and soil respiration in the laboratory leaching experiment in silty loam soil?'

Leaching was carried out weekly using distilled water to simulate the monthly rainfall events in the study area. Experiment was carried out for 12 weeks rainfall. Soil solutions and CO<sub>2</sub> were analyzed in each week. The results showed that; DOC are changed between 1.1 and 24.3 ppm, DIC are changed 20.5 and 47.8 ppm, NT are changed 2.3 and 55.9 ppm. during leaching experiment. Soil respiration varied between 10 and 150 mg C-CO<sub>2</sub> kg<sup>-1</sup> soil h<sup>-1</sup> in the control, between 10 and 250 mg C-CO<sub>2</sub> kg<sup>-1</sup> soil h<sup>-1</sup> in single plots, between 10 and 450 mg C-CO<sub>2</sub> kg<sup>-1</sup> soil h<sup>-1</sup> in triple plots.

Dissolved Organic and Inorganic Carbon, Dissolved Nitrogen, are effected temperature, and pH in the leaching system. pH is a more important factor for DOC leaching than temperature. Soil respiration is not significantly affected by pig manure application even during the four weeks, which is found balance and hold C in the soil with application. In single doses plots, respiration values are strongly correlated with time and also this dose is the agronomic rate of N-requirement (170 kg N/ha/yr) [1]. Finally, single application doses to silty loam soils have positive effect on carbon to the atmosphere and ground water.

[1] Directive 91/676/EEC (1991), *Concerning the protection of waters against pollution caused by nitrates from agricultural sources*. Ofic. J.L 375, 31.12. European Union, Brussels.

## Inorganic and organic occurrences from diagenesis of the Güvenç formation shales in the Adana basin, Turkey

A. BUYUKUTKU<sup>1\*</sup> AND M. ALBAYRAK<sup>2</sup>

<sup>1</sup>Ankara University Engineering Faculty, Department of Geological Engineering, 06100 Besevler, Ankara, Turkey (\*correspondence: butku@eng.ankara.edu.tr)

<sup>2</sup>General Directorate of Mineral Research and Exploration, Sogutozu, Ankara, Turkey (mustafa\_albayrak@hotmail.com)

In the study, shale diagenesis of Güvenç Formation in Adana Basin was determined on the surface samples. Güvenç shales consist of organic matter (% 0.3-0.4) for hydrocarbon formation. X-Ray Diffractometer, Scanning Electron microscope equipped with an energy dispersive analyzer were used for detailed mineralogical, microstructural and elemental analysis for shale diagenesis. Fourier transform infra red spectroscopy (FTIR) was used for organic sample origin in the Güvenç Shales.

Diagenesis in the shales principally involves the progressive development of various types of cements in the following order: Calcite and feldspar formation, mixed layer smectite-illite and smectite-chlorite authigenesis, illite, chlorite authigenesis, quartz.

The C-H peak at 860 cm<sup>-1</sup> shows the occurrence of aromatic groups (Fig. 1).

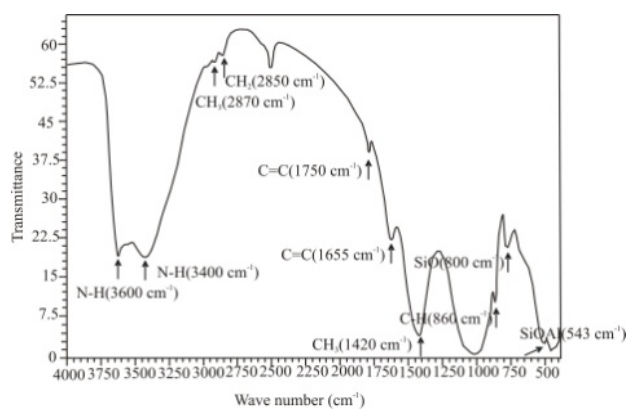


Figure 1: FTIR spectrum of the sample