Name	Counterpart	Title
Damris Muhammad	A04	UV and FTIR characterization of dissolved organic carbon in soil extracts and leachates from tropical lowland rainforest transformation systems

The properties of dissolved organic carbon (DOC) are diverse and complex in nature with varying structural, functional and molecular weights. Tropical lowland rainforest transformation may lead to major modifications of soil properties, including DOC, in the forest floor. The aim of this study was to characterize spectroscopic properties of DOC from the soil using hot and cold water as extraction agents. The spectroscopic properties were determined by a combination of spectroscopic techniques (UV-Vis and FTIR). Soil samples were collected from the forest transformation systems of Bukit Duabelas National Park from 0–10, 10–20 and 20–30 cm soil depths with three replicates. Dissolved organic carbon was extracted from the soil using a soil-water ratio of 1:5. Fractions of the supernatant were used for a 15-day incubation study and analysed at day 1, 5, 10 and 15. The total DOC in top soil (0–10 cm) of natural forest (378µg C/g soil) was slightly higher than the rubber plantation (370 µg C/g soil) and jungle rubber (375 µg C/g soil), but considerably higher than in the oil palm plantation (304 µg C/g soil) (Fig. 1). Depth profiles of total DOC decreased following the soil depth of each forest transformation systems. Hot water extractable DOC was slightly higher than cold water. A UV Spectrum of DOC showed a sharp peak at 235 nm and indicated the presence of aromatic hydrocarbon. Incubation up to 15 days decreased the UV peak gradually. This indicates that the majority of DOC was mineralized with-in two weeks. However, hot and cold water extracts showed variation in response to incubation, probably indicating different characteristics of DOC in the extracts. More lab works is needed on spectroscopic properties of DOC to gather FTIR data analysis.

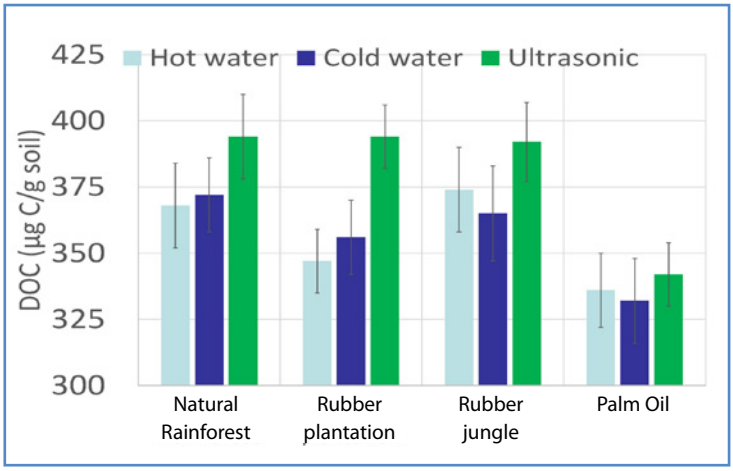

Figure 1.
Dissolved organic carbon (DOC) content from three extractions methods under four transformation systems.