

Interactive comment on “Effect of biostimulation on biodegradation of dissolved organic carbon in biological granular activated carbon filters” by K. Tihomirova et al.

K. Tihomirova et al.

kristina.tihomirova@rtu.lv

Received and published: 30 March 2012

We thank the topical editor for the comments.

1. Provide more information about the outcomes of the previous studies using BDOC in similar applications.

Our previous studies showed that during biodegradation NEU fraction was consumed up to 75 % (Tihomirova, 2011) using BDOC method in similar applications. To correctly perform the measurements of BDOC the biomass in experimental column system should be adapted to new substrate. Adaptation period ranged from 6 to 24 h depending on concentration of substrate and type of water samples (Tihomirova et

C5

al., 2012). During the adaptation period an increased reproducibility and decreased error of measurements of BDOC or standard deviation were observed (Tihomirova et al., 2012). Biodegradation rate determination was performed using similar bioreactor BDOC set-up developed within the EU- project TECHNEAU (Eikebrokk et al., 2007), which yields information not only on final BDOC-levels but also on the degradation kinetics.

2. What are the pros/cons of the method?

(-) Addition of LOC (biostimulation) increases the rate (or efficacy) of the biodegradation only for a short period (24 - 168 hours). Thus, to use this approach for enhancing performances of biofilters the strategy of altering several types of LOC should be used, which may render the process to be too laborious.

(+) With this approach biodegradation of humic rich water can be enhanced can be increased up to 29 %, which is very close to the theoretical – 30 % as DOC (Volk et al., 2002).

3. Does it present complementarity to other methods?

Yes, it presents complementarity to other water treatment methods. At this moment, main problem is the short biostimulation effect (only 29 hours with NaAc and 148 hours with LB) and biomass detachment in effluent samples when biostimulation period was accomplished. This biostimulation method can also be compared with the other (e.g. phosphorus dosing into biofilters to stimulate the activity of the biomass (Rubulis, 2006)).

4. Section 2.1 is not really needed

Section 2.1 described the glassware preparation what is important step for BDOC determination method.