

Genomic and proteomic analysis of biofilm growing on biological activated carbon

Starting date : April - June 2020

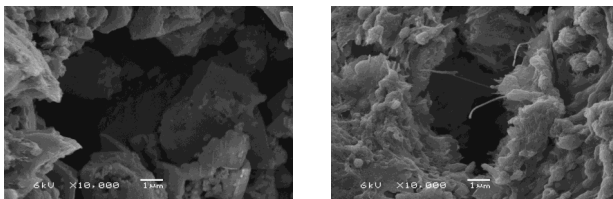
Duration : 4 - 6 months

Motivation

Biological activated carbon (BAC) is water purification technique which utilize biofilm-enclosed activated carbon for removal of natural organic matter from water. BAC has also shown a great potential to prevent biofouling and to remove pharmaceuticals and pesticides.

Despite this, only a few study on the microbial community responsible for the removal of organic pollutants in the BAC's biofilm were done. Moreover, metabolic process(es) of the biofilm has not been studied at all.

In this project, thorough microbial community and protein analyses of the biofilm will be initiated by developing direct genomic and proteomic analysis methods.



(a)

(b)

Figure 1 Activated carbon pores (a) clean without biofilm, (b) with biofilm

Your responsibilities



Compare the methods for biofilm detachment from the activated carbon granules.



Compare DNA and protein extraction methods

Optimize DNA and protein purification methods



DNA quantification

DNA and protein electrophoresis (agarose and SDS-PAGE)



Bioinformatics analysis

Your benefit

- Allowance 175 EUR per month
- Experience to work in an international environment
- Experience to work in molecular biology and biochemistry
- Contribution to the advancement of water technology

Your profile

- Dutch / EU students / non-EU students studying in a Dutch university
- Have a valid driver's license in the Netherlands
- Strong background in Molecular Biology and Biochemistry
- Experience in DNA and protein extraction and purification is preferred
- Responsible, accuracy and precision-oriented

How to apply



Send your CV (max. 2 pages) and motivation letter (max. 1 page) to:

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