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Master's thesis/Diplomarbeit

(begin at any time)

„2-Step-process to increase the bioavailability of micro-elements in highly stressed anaerobic systems“

Keywords: **biogas, trace elements, fermentation, analytics, inhibition agents**

Micro-nutrients, such as iron, nickel or zinc, as well as many other metal compounds, are essential for an intact functioning of a bacterial cell and its enzymes, respectively. Micro-nutrients can only be absorbed by the cell if they are available as ionic or complex form.

A variety of (bio) chemical reactions take place in an anaerobic reactor which have a significant influence on the chemical form of the micronutrients.

Traditional analytical methods provide inadequate information on the bioavailability of such elements. A corresponding method was already developed and adapted.

The master's thesis includes the implementation of a novel 2-steps approach on a laboratory scale in cooperation with an industrial partner.

The aim is to minimize the influence of inhibitors on the one hand and on the other, a significantly increasing of the bioavailability of the essential trace elements. The bioavailability of the elements will be monitored with the developed analytical measurement method.

Requirements: basics in chemistry, biotechnology

Remuneration related to the hourly rates of FWF.

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