

Abstract

According to our contemporary knowledge soil is the most abundant source of microbial biomass. Unfortunately, only one percent of the microorganism species is available by classical cultivation techniques. Soil metagenomic DNA is a collection of the whole DNA including also uncultivated microorganism in the soil sample and provides information to study molecular aspects of microorganism and their DNA sequences inaccessible by other techniques.

This work is focused on characterization and isolation of soil metagenomic DNA from deep horizon of capping. Evaluation in term of the isolation and techniques of recombination of DNA and stratification study are included in this work.

Obtained collection of samples was preliminary characterized with the view of quality – content of clay, humic compounds and crude number of microorganism. The purified soil metagenomic DNA was quantitatively and qualitatively characterized for each sample. The quantification method and DNA quality determined the next applications and procedures of DNA techniques. Also the soil quality was discussed from this point of view.

According to the results of DNA analysis, the three selected DNA samples were processed to DNA library with 16S rRNA DNA loci and after DNA sequencing analysis the phylogenetic study was performed. This study was discussed with respect to the changes of microbial diversity depending on the depth of soil capping.

(In Czech)