

## **D2-1 Report on new Bioethanol producing strains**

A series of different isolates of bacteria have successfully been cultivated and isolated from enrichment operated on minimal media supplemented with pretreated biomass. Temperatures and pH during screening were selected to include those applied during enzymatic hydrolysis (EH), ultimately aiming at performing simultaneous saccharification and fermentation (SSF) at conditions optimal for the enzymes (pH 5, 50°C) as opposed to SSF with yeast operating at 30-35°C. The combination of temperature and pH, closest to that of enzymatic hydrolysis, from where a rapidly growing enrichment culture could be obtained, was pH6 at 55°C.

Among the isolated strains, BG374 was the isolate capable of fermenting the highest concentration of pretreated biomass and did at the same time convert the present sugars faster than any of the other isolates. Sequencing of the multiple non---identical copies of 16S rRNA revealed that **BG374** phylogenetically genes was closely related to both Thermoanaerobacterium aotearoense and Thermoanaerobacterium aciditolerans. The isolate fermented pretreated sugars as well as synthetic xylose into lactate, acetate, butyrate, and ethanol.

## Lead author

Marie J. Mikkelsen BioGasol Lautrupvang 2 ADK 2750 – Ballerup Denmark Tel: +45 2097 0763 Email: <u>mjm@biogasol.com</u> Web: www.biogasol.com