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Research on alternative feedstock for 2nd generation bioethanol at Risø DTU

Abstract of poster presentation

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Research on alternative feedstock for 2nd generation bioethanol at Risø DTU
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Feedstock cost is a significant part of the ethanol production costs therefore the selection of readily available and cheap feedstock is vital to achieve a sustainable economics of the ethanol fermentation. The Biofuels and Biorefinery Program of Risø DTU has a long term experience in energy production from agricultural or agro-industrial byproducts, wastes with special expertise in biogas- and second generation (2G) biofuels production. “Conventional” lignocellulosic feedstocks (like wheat straw, rape straw and corn stover) dominate our research activities however extensive research is currently being carried out on novel substrates that can be involved in second generation ethanol production. Two projects’ concepts, dealing with alternative substrates, will be presented on the event.

- Macro algae can grow on non-agricultural land, without increasing food prices or using fresh water, meanwhile it is consuming CO₂ for growing. In addition, macro algae general have very high biomass yield (doubles its biomass within 3-4 days) with high carbohydrate content (60 g/l), thus macro algae represent a huge unexploited bioresource with potential for production of biofuel for the marked in the near future.

- The overall objective of another project is to develop sustainable technologies for production of 2nd generation biofuels from lignocellulosic waste material in a developing country exemplified by Ghana in West Africa. That involves developing an effective combination of pre-treatment, in situ enzyme production, enzymatic hydrolysis and production of biofuels on novel substrates such as residues from yam, cassava, cocoa production, palm oil industries etc. The characterization of these materials will allow us to make a selection of the best raw materials to be included as feedstock for advanced bioethanol production.