

4th International Conference on
GREEN ENERGY & EXPO
&

6th International Conference on
RECYCLING: REDUCE, REUSE & RECYCLE November 06-08, 2017 | Las Vegas, USA

Expression of enzymes in *E. coli* to produce biofuels

Gupta M^{1,2}, J A Jones¹ and M A G Koffas¹

¹Rensselaer Polytechnic Institute, USA

²DAV University, India

Methane, as natural gas or biogas is the least expensive source of biofuel. The main problem with the use of methane is its non-compressing nature. The biological upgrading of this single carbon source to biofuels as well as high value chemicals can bring new sustainable solutions to a number of industries with large environmental footprints. Today, biological engineering has provided new opportunities for metabolic system modulation and give new optimism to the concept of a methane-based bio-industry. The proposed approach is to simultaneously use methanol (MeOH) and CO₂ to produce isobutanol with a future goal of going all the way back to the conversion of methane to biofuels. We have engineered *E. coli* cells to utilize MeOH as a carbon and energy source by expressing methanol dehydrogenase (MDH) and two enzymes from the methylotrophic HuMP pathway. The isobutanol pathway has been integrated into *E. coli* genome using CRISPR technology. The proposed technology is unique and innovative and has a high probability for commercial success. As global energy requirements change and grow, it is crucial that energy infrastructures need to be adapted and changed to fulfill the promises of increasing population for power generation. Hydrocarbon liquid fuel production from natural gas/methane or methanol will help to replace a significant amount of petroleum-based liquid fuel usage while at the same time will also harvest value from a wasted resource and help to mitigate climate change issues.

Biography

Gupta M is currently working as Indo-US Postdoctoral fellow in Rensselaer Polytechnic Institute under the mentorship of Professor Mattheos Koffas, a renowned Scientist in the field of Metabolic Engineering. She is having expertise in microbiology, cell biology and microbial metabolic engineering. Her previous research work focused on exploration of microbial diversity for sustainable environmental solutions. She has published eight research papers in journals of international repute.

mamtagupta2503@gmail.com

Notes: