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Recycle of process streams for sustainable production of algae biofuels

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In spite of several benefits offered by microalgae biomass as a feedstock for biofuels, high material and energy costs linked with production process poses a challenge of sustainability. Along with large volumes of water, nutrients (Nitrogen and Phosphorus) are among the substantial costs in cultivating algae. One of the many strategies to reduce the cost of cultivating algae is to lower the water footprint and reduce the nutrient requirement by efficient recycle of process streams. At Reliance Industrial Limited (RIL), the process development effort has an extensive focus on recycle of various process streams, to develop sustainable algae to oil process. This presentation will summarize the work carried out through targeted research leading to optimum recycle of harvested water and nutrients from different process streams; without any adverse impact on growth and productivity. Small-scale development work was carried out outdoors (in aquarium), in a semi-turbidostat mode, with water and nutrients supplementation from recycled process streams. Impact of inhibitors/toxic matter due to build-up in the system was studied. The results indicate a significant improvement in cost savings due to recycle of water and nutrients.

Biography

Ashwin Gajra has more than 15 years of experience in developing products and processes for Biotech applications. He has developed, scaled up and transferred technology for biofuels, biopharmaceuticals, diagnostic markers and waste water treatment and animal feed. He is currently developing cost-effective processes for separation and dewatering of algae, for biofuels and other high value applications.

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