### conferenceseries.com

2<sup>nd</sup> International Congress and Expo on

# **Biofuels & Bioenergy**

August 29-31, 2016 Sao Paulo, Brazil



## Vijay Singh

University of Illinois at Urbana-Champaign, USA

### Biodiesel and ethanol from modified sugarcane

A new bioenergy crop has been recently developed for the US: Lipid cane, a sugarcane engineered to produce non-food oil, as drop-in fuels, in place of sugar. Lipidcane present excellent potential to serve as a renewable fuel crops. Lipid cane is a crop suitable for land in the South Eastern US that is marginal, or unsuited for food crop production. At the current yields of sugarcane in the SE US, this would produce about 33 barrels of oil per acre, compared to about 1 from soybean. By increasing the photosynthesis, even higher barrels of oil per acre can be produced. Sugarcane is far less demanding on soils and fertilizers than food crops in general, and can be grown on land unsuited to food/feed crops. The US south-east has large areas of land that have dropped out of food and fiber crops agriculture, a decline that continues to this day. Yet this area receives high rainfall, sufficient to avoid the need for irrigation, and the long growing season maximizes the amount of sunlight these crops can capture over the year. By modifying the plant's own triaclyglyceride (oil, TAG) pathway to up-regulate synthesis in the mature stem and down regulate consumption, so causing accumulation. TAGs, in lipid cane are similar to those of soybean and can be easily converted to biodiesel. Preliminary estimates indicate that using the 23 billion acres of marginal land in the SE US that is not in food production, more than 25 billion gallons of oil could be produced with these crops. Techno-economic evaluation of lipid cane as biofuel crops will be presented.

#### **Biography**

Vijay Singh received his MS and PhD in Food and Bioprocess Engineering from the University of Illinois at Urbana-Champaign. He is Professor in Food and Bioprocess Engineering and Associate Director of Integrated Bioprocessing Research Laboratory at the University of Illinois at Urbana-Champaign. His research is on development of bioprocessing technologies for corn/biomass to ethanol, advanced biofuels, food and industrial products. He has directed more than \$9.5 million research; authored more than 200 publications and holds ten patents related to corn processing and biofuels production. He has received numerous Excellence In Research Awards from professional societies, academic institutions and trade organizations.

vsingh@illinois.edu

Notes: