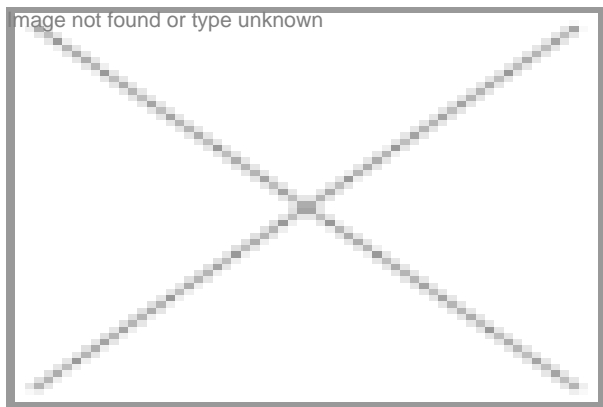


## Mission: Economical way to bioethanol

10 April 2012 | News

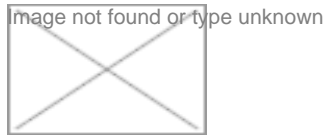


Funding from Department of Biotechnology has helped Richcore Life Sciences molasses fermentation

Bioethanol has emerged as the best possible alternative to fossil fuel at a time when depletion of fossil fuel reserves and the consequent rise in fuel prices have become global concerns. Molasses, a by-product of sugarcane and beet processing, is considered one of the best substrates for ethanol production in tropical countries. It is at present one of the least expensive sources of sugar and, in contrast to grain, does

However, environmental factors, such as high temperature and humidity, in tropical regions result in loss of sugar content in molasses, increasing the consumption of molasses during fermentation and resulting in lowered yields.

Bangalore-based Richcore Lifesciences has developed a technology to improve alcohol yield from molasses. Another objective of the technology is to prevent the loss of sugar content in molasses due to environmental factors and microbial contamination during storage. A significant improvement in ethanol yield is achieved by the addition of specific enzymes to the molasses that convert the unfermentable sugars, constituting up to five percent of dry solids in molasses, into more readily fermentable forms.



Dr Swati S Dash, manager-R&D, Richcore Lifesciences, explains the process. “An increase in ethanol production from molasses (up to five percent net increase) can be achieved by optimizing the combination of enzymes targeted towards complex carbohydrates and unfermentable simple sugars. It has to be added along with the yeast in experiments carried out at shake flask-level initially and then at reactor scale, and a strategy has to be developed for application of the same to molasses during fermentation,” she says.

The company submitted a project proposal to the Department of Biotechnology (DBT) under Category III of the Biotechnology Industry Partnership Programme (BIPP) scheme in December 2008. The proposal was presented before a screening committee in February 2009. Following site verification by a three-member team, including the chairman of Biotech Consortium India Limited (BCIL), in March 2009, the DBT sanctioned a grant of ₹88 lakh for the total budget.

“The project was a great support during the developing stages of Richcore's R&D in terms of funds for research and manpower and guidance from distinguished members of the technical evaluation committee. Besides, it ensured efficient management and utilization of funds. Sharing of risks and rewards brings in innovation and quality in work, resulting in higher productivity. It is also a great motivation for biotech-based industries to work towards socially important projects,” adds Dr Dash.

#### The way forward

Improvement in ethanol production by addition of this specific enzyme during molasses fermentation is patentable as it is novel, unique and has a large-scale commercial application in India and across the world. It increases ethanol production from molasses without any additional capital expenditure. While the technical objectives of the project have been completed, large-scale trials are currently on to test the method. The key findings from the project will be transferred to alcohol producing units and can be implemented in larger-scale fermentation plants.

**Rahul Koul** in New Delhi