

Biotech firms go after smart enzymes to fuel energy sector

AHMEDABAD: BIOTECH companies producing industrial enzymes are gradually moving to cellulosic enzymes that help in [bio-fuel generation](#). Enzymes are biological catalysts and when added to agriculture residue speed up the process of producing bio-fuel.

The companies say, there is a spurt of enquiries for these energy converting enzymes as conventional energy sources are getting expensive.

In last one year, at least four enzymes makers in India are flooded with enquires for cellulosic enzymes.

Ahmedabad-based Maps Enzymes is busier after its recent foray into enzymes for renewable energy sector. [Mapz Enzymes](#) entered into an agreement with National Institute of Interdisciplinary Science & Technology (NIIST), Thiruvananthapuram, for preparing two cellulosic enzymes - P Janthinellum and [Beta Glucosidase](#). The enzymes when used with biomass or agricultural residues, can produce bio-fuel and bio-gas, usually methane gas.

"Rising fuel cost and the inflationary impact have led corporates and institutions look for enzymes to satisfy their hunger for energy", says Piyush Palkhiwala, chairman of Maps Enzymes. His company is conducting trials at its private plant in Ahmedabad and plans to set up a facility for bio-fuel enzymes with an investment of Rs 20 crore.

Public sector Nagarjuna Fertilizers and Chemicals Ltd (NFCL) has expressed interest in Maps' bio-fuel cellulosic enzymes and has already bought a few kilograms of enzymes. NFCL is running a pilot project and plans to enter bio-fuel production.

Biogas and bio-fuel are produced through decomposition of organic material. Currently, commercial production of bio-ethanol (bio-fuel) is done through first generation enzymes. Globally, 22,000 mw power is produced from biogas. A study by [Bloomberg](#) New Energy Finance says, India will meet its 59% of fuel demand through bio-ethanol.

With better technology in enzymes, cellulose fibres are used for extracting bio-fuel and bio-gas, in larger quantities from agricultural residues like wheat straw, rice straw, corn cobs, and bagasse.

Chairman of Mumbai-based Advanced Enzyme Technologies Ltd (AETL), CL Rathi says coporate houses have shown interest in cellulosic enzymes in the last eight to six months. "Fuel prices are rising and many are forced seek energy from alternative sources. Smart or high quality enzymes can double the production of bio-fuel," he says.

Mr Rathi, along with his team, is planning a facility which would provide a complete package for setting up bio-fuel or bio-gas infrastructure for companies who plan to set up bio-fuel or bio-gas based energy power station. Currently, the kind of high quality enzymes that AETL manufactures and supplies can increase bio-gas production by 20% when 25 gm of enzymes is added to one tonne of agriculture waste.

AETL is currently involved in a pilot project for biogas energy which has been carried in collaboration with University Institute of Chemical Technology (UDCT), [India Glycols Ltd](#) and others. AETL is also in collaboration with a Europe-based company for biogas energy, where it supplies high quality enzymes.

AETL in last few months is in talks with companies from Japan, Europe, America and UK, while from domestic companies it had received sudden burst of enquires for enzymes that are use for biogas or bio-fuel production.

Kolkata-based Noor Creations, a local player in enzymes, too has recently supplied enzymes for bio-fuel to [Indian Oil Corporation \(IOC\)](#) in Faridabad. According to founder Shabaaz Solanki the recent hike in global and local fuel prices has provided a warning for corporates.

"There has been significant enquiries from corporates and leading oil companies and we are working closely with some of their R&D departments." said GS Krishnan, regional president- India, Novozymes South Asia. Novozymes has partnered with [Praj Industries](#) for developing cellulosic ethanol and also provided its enzymes - Celic2 to various institutes who are working on development of cellulosic ethanol including UICT Mumbai.

Novozymes is the largest supplier globally in enzymes for existing biotethanol and has around 60% of biofuel enzyme market.