



# Praj Industries: The bio processing experts

Offering future-ready technologies for advanced biofuels(2G) and biochemicals

US based Biofuels Digest announced that Praj Industries of India is ranked 2<sup>nd</sup> in a list of world's 50 Hottest companies in global bioeconomy for 2021 in Low Carbon Fuels and Renewable Chemicals category.

Additionally, Praj has also secured 3<sup>rd</sup> ranking in the newly introduced Biodesign & Engineering category that recognizes hottest companies for their capabilities in innovations and services in commercial-scale operations and products.

## About Praj Industries

Praj, the leading bio-processing technology company is defined by innovative technologies and their deployment. Over the past three decades, Praj has focused on the environment and bio-energy, with over 1000++ reference spanning 100+ countries across 5 continents.. Praj Matrix, the state-of-the-art R&D facility, is the fountainhead for the company's endeavours towards a clean energy and materials based bioeconomy.

Praj's clientele comprises significant players who have an ambition to play pioneering role in the bio-energy arena. These are from diverse fields such as oil and gas, sugar and chemicals.



**1** Praj Industries  
Nº **Best Places to WORK**  
in the advanced Bioeconomy 2021  
**BiofuelsDigest**  
The world's most widely read biofuels daily

## Engage with the hottest 50

- #2** Company in Renewable Fuels, Chemicals & Biomaterials
- #3** Company in BioDesign & Engineering Organizations
- #5** Project in Lignocellulosic 2G Ethanol Plant

in the bioeconomy.

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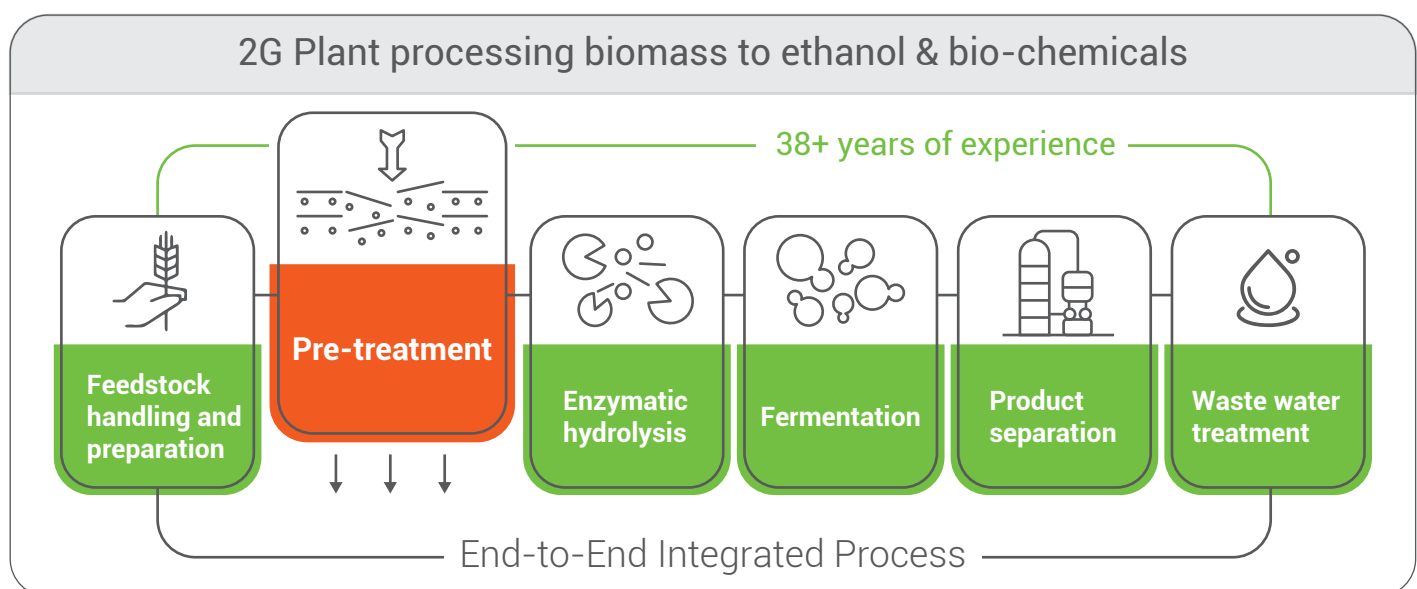
## The Praj Advantage

### From Concept to Commercial scale

Praj's innovative and robust technologies have focused on bio-processing solutions that help reduce carbon footprint for customers producing conventional biofuels (1G), advanced biofuels (2G) and biochemicals. The company provides end-to-end solutions to set up integrated bio-refineries which process multiple bio-based feedstock (sugary, starchy and ligno-cellulosic) to produce different forms of biofuels for surface, marine and aviation, biochemicals and value added co-products. Customers benefit from higher asset utilisation and enhanced revenue streams.

After beginning R&D in 2007 on lignocellulosic feedstock, Praj set up a pilot plant in 2009 which has been operating on a variety of feedstocks including corn stover, sugarcane bagasse, corn cobs, rice/wheat straw, cotton stalk and palm empty fruit bunches (EFB). Years of rigorous testing, 800,000 manhours of technology development and engineering capabilities have led us to commercialisation.

Praj developed best in class cellulosic pre-treatment system and integrated it with hydrolysis, fermentation & product separation units which form our advanced ethanol technology platform called "enfinity™". This helps our customers to utilize ligno-cellulosic feedstock efficiently for the production of biofuels and biochemicals







## Innovate, Engineer, Commercialise

With over three decades of experience in process design, scale up, engineering and commercialization of technologies worldwide, Praj is uniquely positioned for-

### Innovation

- ◇ Validation and building proof of concept.
- ◇ Evaluation of different process configurations and implementing the most economical.
- ◇ Process optimization & integration engineering
- ◇ Process scale up

### Technology and process know-how

- ◇ End to end solutions right from feed-stock processing to final product
- ◇ Integration engineering – Energy & water optimization
- ◇ Efficiency enhancement
- ◇ Product recovery & concentration

### Engineering

- ◇ Basic engineering packages for process plant and support for detailed engineering packages.
- ◇ Support for engineering of off-sites
- ◇ Supervision support during installation phase.
- ◇ Plant operation support

### Design

- ◇ Concept Development
- ◇ Process Design
- ◇ Front End Engineering & Design (FEED)
- ◇ Equipment Design

## Technology Highlights

### Advantages of enfinity™

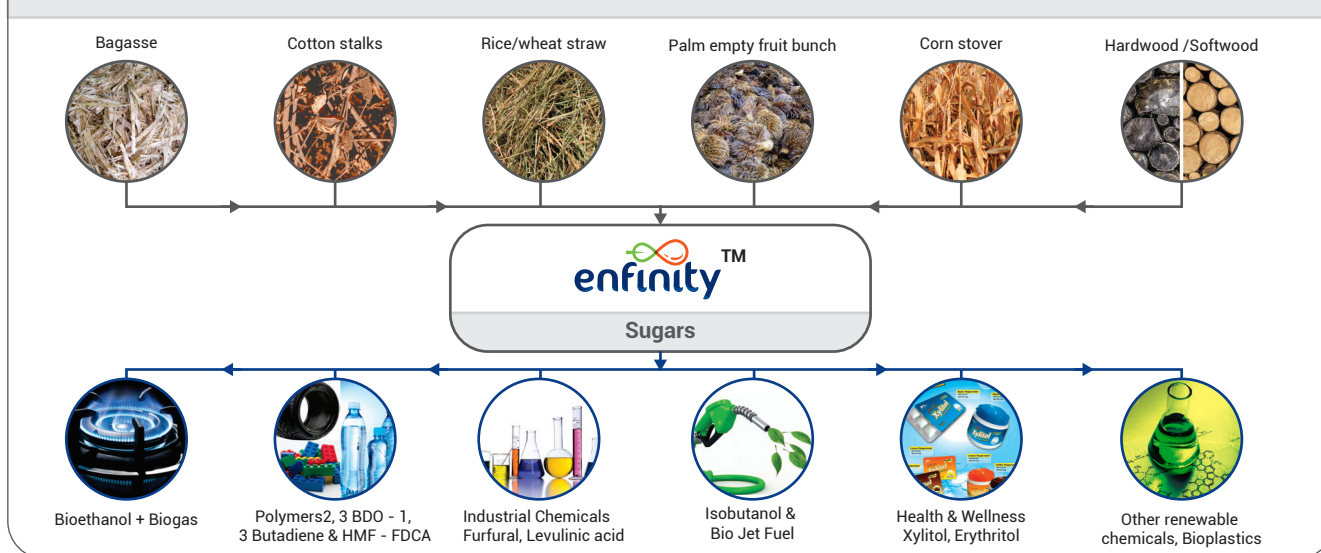
- ◇ Multi-feed, multi product processing capability.
- ◇ Efficient degradation of biomass to sugars.
- ◇ Efficient hydrolysis to offer best in class yields.
- ◇ Thermally integrated process to achieve low net energy usage.
- ◇ Technology with zero process liquid discharge.
- ◇ Lowest number of unit operations leading to lower CAPEX.

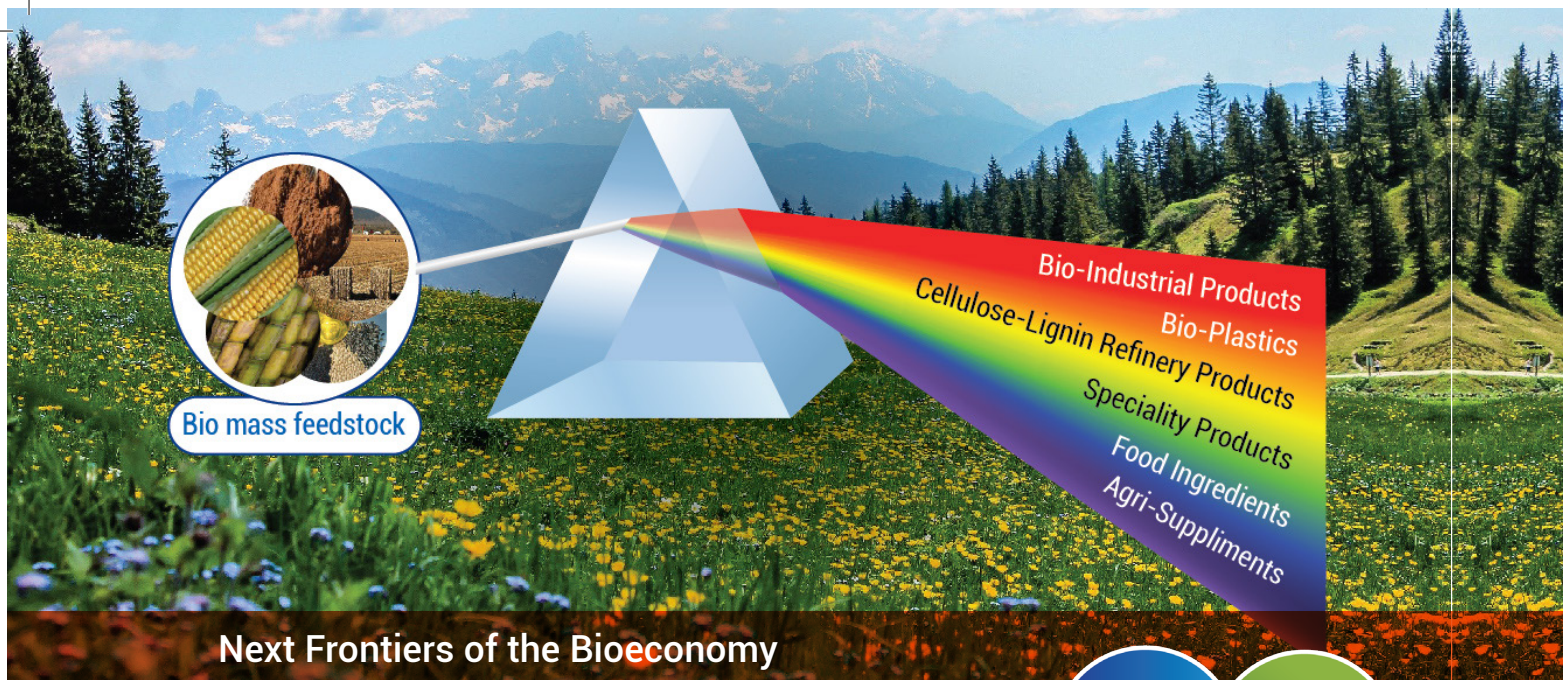
### Licensees for Praj's enfinity™ technology

Praj's four commercial biorefineries for energy companies process multiple agricultural residues for Bharat Petroleum Corporation Limited (BPCL), Indian Oil Corporation Limited (IOCL), Mangalore Refinery and Petrochemicals Limited (MRPL), Hindustan Petroleum Corporation Limited (HPCL).



### Smart Biorefinery: Multi feedstock to Multi-product





## Next Frontiers of the Bioeconomy

### Bio-Mobility™

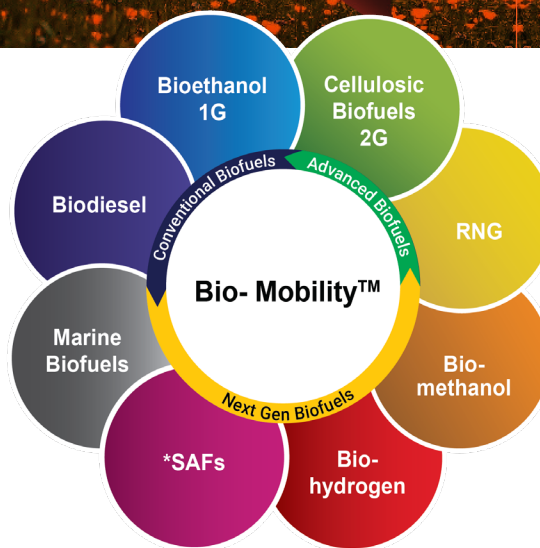
Bio-mobility™ and Bio-Prism™ are the mainstays of Praj's contribution to the global Bioeconomy. The Bio-Mobility™ portfolio offers technology solutions globally to produce renewable transportation fuels, thus ensuring sustainable decarbonization through circular bioeconomy.



### Bio-Prism

Nature Reimagined - Promise of Sustainability

The company's Bio-Prism™ portfolio comprises of renewable chemicals and materials, solutions which secure sustainability.



## Partnerships

Praj believes the next spurt of innovation will emerge through partnerships with global leaders in their respective areas

**Sekab**

Advanced bio-ethanol from Softwood

**gevo**  
FUELING THE FUTURE

Iso-butanol and Sustainable Aviation Fuel (SAF)

1000++ references in 100+ countries across 5 continents and still counting...

**praj**

Innovate • Integrate • Deliver

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