



Enzyme Technology for Biofuels

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The scientists from India have received a patent from the US Patent and Trademark Office for the **enzymes that enhances the production of biofuels from agricultural waste.**

- The scientists are from the **International Centre for Genetic Engineering and Biotechnology (ICGEB)**, New Delhi.
- **Technology:**
 - Scientists **disrupted a control mechanism found in the fungus *Penicillium Funiculosum* (PF)** that regulates its metabolic activity.
 - Disrupting this mechanism helped the scientists to increase the production of enzymes that are involved in **converting cellulose into sugars and thus increased the production of biofuels.**
- **Benefits:**
 - It will address the **problem of very limited availability of commercial cellulase enzyme preparation in the market** for 2G ethanol and thus help in **reducing the prices.**
 - It can **produce higher quantities of the Second Generation (2G) ethanol from agricultural waste materials** including rice and wheat straws, whose burning deteriorates the air quality in the national capital and other parts of Northern India.

Estimates show that India produces around 500 million tonnes of agricultural waste annually.

International Centre for Genetic Engineering and Biotechnology

- It is a unique **intergovernmental organisation** initially established as a special project of the United Nations Industrial Development Organization (UNIDO).

UNIDO is the **specialized agency of the United Nations** that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability.

- Fully autonomous since 1994, it runs 46 state-of-the-art laboratories, in **Trieste, Italy (also Headquarters of the Centre), New Delhi, India** and **Cape Town, South Africa** and forms an interactive network with over 65 Member States.
- It plays a key role in Biotechnology worldwide for excellence in Research, Training and Technology Transfer to industry to contribute in concrete terms to the achievement of sustainable global development and **operates within the United Nations System.**

Source: HBL