



Union Minister Dr. Jitendra Singh Formalises Commercial Launch of Bio-based Biodegradable Plastic under BioE3

India's Diverse Biomass Resources Can Turn Waste into Wealth and Create New Bioeconomy Value Chains: Dr. Jitendra Singh

Minister Calls for Wider Public Outreach to Showcase How Sugarcane Can Transform from Food Resource into Sustainable Materials

PLA-based Biodegradable Plastic Marks India's Move Towards Next-Generation Sustainable Manufacturing

75 Crore BioE3 Grant Supports 100 TPA Pilot Facility for PLA and Co-Polymers by Balrampur Chini Mills

Posted On: 24 SEP 2026 5:57PM by PIB Delhi

Union Minister of State (Independent Charge) for Science & Technology, Earth Sciences and MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh today formally launched the commercial use of bio-based biodegradable plastic based on Polylactic Acid (PLA), marking an important step in India's transition towards next-generation sustainable manufacturing.

The initiative, being taken forward by Balrampur Chini Mills Limited (BCML) under the Government's BioE3 (Biotechnology for Economy, Environment & Employment) framework, combines biotechnology, sustainable manufacturing and commercial translation. A ₹75 crore grant from the Biotechnology Industry Research Assistance Council (BIRAC), under the Department of Biotechnology (DBT), is supporting the 100 TPA pilot-scale R&D facility for PLA and co-polymers, aimed at developing advanced bio-based materials and facilitating their translation towards commercial production.

The initiative was unveiled at the Department of Biotechnology, Ministry of Science & Technology, in New Delhi. The pilot-scale facility will be established at BCML's integrated manufacturing complex at Kumbhi, Uttar Pradesh, where it will support the development and scale-up of PLA and co-polymer technologies for sustainable material applications.

Speaking on the occasion, Dr. Jitendra Singh said the initiative represents a significant milestone in India's bioeconomy journey, where biotechnology is moving beyond laboratory research towards commercial products, sustainable manufacturing and employment generation. He said India's bioeconomy, which was around US\$10 billion in 2014, has grown to nearly

US\$195 billion, reflecting the rapid expansion of biotechnology-led economic activity. He said the next phase must focus on translating scientific capabilities into commercially viable products and technologies.

Dr. Jitendra Singh said the PLA initiative can strengthen India's ability to participate in the global transition towards sustainable manufacturing and create a new value chain based on biological resources. He said the project demonstrates how indigenous scientific capabilities can be connected with industrial production to create high-value materials while addressing environmental concerns. The initiative, he added, can contribute to India's emergence as a global leader in the bioeconomy and as a source of practical solutions for other countries.

A major focus of the Minister's address was the "waste to wealth" approach. Dr. Jitendra Singh said India's diversity means that different regions generate different kinds of biomass and waste, requiring different technologies and methodologies for conversion into useful products. Region-specific biotechnology capabilities, he said, can therefore help convert locally available resources into wealth while creating new opportunities for regional development.

"There is no such thing as waste," Dr. Jitendra Singh said, stressing that materials described as waste often contain significant underlying value that can be unlocked through science and technology. He said India's diverse experience with biological resources, recycling and biomass conversion gives the country an opportunity to develop solutions that can have wider global relevance.

The Minister said the commercial translation of research must happen at an early stage, with technologies moving from laboratories to markets through pilot facilities, validation, skilled manpower and industry participation. He said the PLA facility can become a platform for developing polymers for high-value applications, training skilled personnel and generating the knowledge and experience required for commercial-scale manufacturing.

The 100 TPA pilot-scale R&D facility will focus on developing specialised PLA grades and advanced PLA co-polymers for high-value applications. It will generate techno-economic data and process know-how, support product development and customer validation, facilitate technology indigenisation and help enable seamless scale-up towards commercial production. The facility will also strengthen collaboration between industry, academia and research institutions.

Dr. Jitendra Singh also called for greater public outreach to explain biotechnology in simple and relatable terms. He suggested that communication around such technologies should show how everyday agricultural resources such as sugarcane can be converted into products beyond food, including sustainable materials. He said such storytelling can help people understand the value of biotechnology, encourage wider adoption and support the commercial use of indigenous technologies.

Linking the initiative with the Government's "Vocal for Local and Global" approach, Dr. Jitendra Singh said India should build indigenous commercial production capabilities and take successful technologies from local development to global markets. He said the BioE3 framework provides an opportunity to simultaneously advance the country's economic growth, environmental sustainability and employment objectives.

The PLA initiative also marks a significant diversification of India's bio-based manufacturing landscape. BCML's commercial PLA venture is based on converting renewable sugar-based feedstock into PLA and bioplastics, creating a pathway from agricultural resources to sustainable materials. The company has

projected its commercial PLA facility as an industrial-scale bio-plastic venture, while the BioE3-supported pilot facility will provide an innovation and R&D platform for next-generation PLA grades and co-polymers.

Speaking on the occasion, Dr. Rajesh Sudhir Gokhale, Secretary, DBT, DG-BRIC and Chairman, BIRAC, said the initiative takes biotechnology beyond laboratory science towards an integrated manufacturing ecosystem involving validated processes, pilot facilities, skilling and commercial-scale production. He said the project can create a new value chain beyond ethanol by converting biological resources such as sugar and other biomass into lactic acid and high-value biopolymers, while creating opportunities for sustainable development, employment and regional growth.

Present on the occasion were Secretary, DBT, Director General, BRIC and Chairman, BIRAC, Dr. Rajesh Sudhir Gokhale; Dr. Dhananjay K. Tiwary, Scientist-H, DBT and Managing Director, BIRAC; Ms. Ekta Vishnoi, Joint Secretary, DBT; Dr. Kalaivani Ganesan, DBT; Dr. Shilpi Gupta, BIRAC; and Ms. Avantika Saraogi, Executive Director, Balrampur Chini Mills Limited, among others.

The BioE3-backed initiative is expected to accelerate the development and commercialisation of advanced bio-based materials, strengthen India's indigenous biomanufacturing capabilities and support the emergence of a sustainable, employment-generating and globally competitive bioeconomy.





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