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(57) Abstract :
Disclosed herein is a harnessing synthetic biology system for adipic acid production (100) comprises a lignin waste input unit (102) configured to receive and process lignin-based biomass. The system also includes a chemical extraction module (104) adapted to extract guaiaicol from the processed lignin. The system also includes a bacterial conversion bioreactor (106), operatively connected to the chemical extraction module, comprising a co-culture bacterial consortium. The system also includes an output collection unit (108) configured to collect and purify the adipic acid produced from the bioreactor.

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