PLA Production from Multi Supply Lignocellulosic Biomass Residues: A Pathway for Agrifood Sector

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Abstract : The demand and commitment to sustainability in the agrifood sector introduce news opportunities for new composite materials. Composite materials are emerging as a vital entity for the sustainable development. Polylactic acid (PLA) has been recognized as a potential polymer with attractive characteristics for agrifood sector applications. PLA that can be beneficial for the development of composites, biocomposites, films, porous gels, and so on. The production of PLA from lignocellulosic biomass residues matrix is a key option towards a sustainable and circular bioeconomy and a non-competitive application with feed and food sector. The Flui and BeirInov projects presents news developments in the production of PLA composites to value the Portuguese forest ecosystem, with high amount of lignocellulosic biomass residues and available. A performance production of lactic acid from lignocellulosic biomass undergoes a process of autohydrolysis, saccharification and fermentation, originating a lactic acid fermentation medium with a 72.27g.L-1 was obtained and a final purification of 72%. The high purification PLA from multi lignocellulosic residues representing one economic expensive process, and a new materials and application for the polymers and a combination with others types of composites matrix characteristic is the drive-up for this green market.

Keywords : polylactic acid, lignocellulosic biomass, agrifood, composite materials
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