

# Plasticized PLA Composites Enhanced with Cellulose Nanoparticles for Improved Mechanical and Thermal Performance

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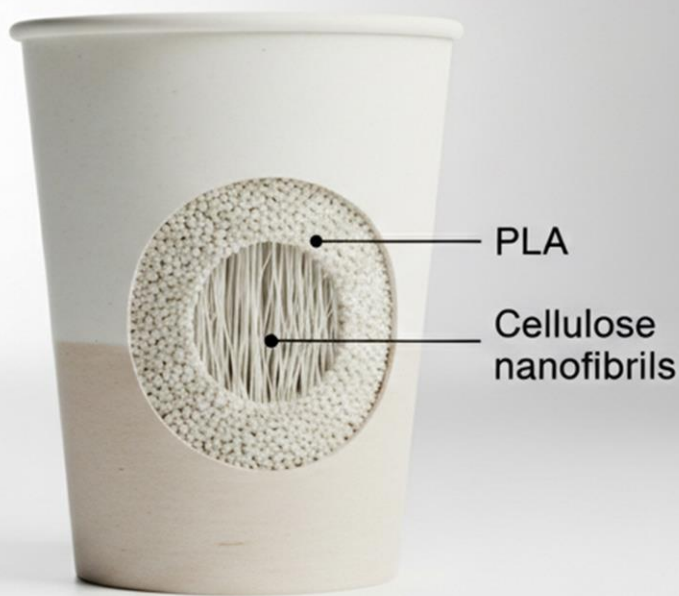
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**Editor's note:** Polylactic acid (PLA) is a bio-based polyester known for its good mechanical properties and biodegradability. However, its brittleness limits its applications. Nkuna et al. enhanced PLA by incorporating plasticizers such as triacetin (TA) and triethyl citrate (TEC), along with cellulose nanofibers (CNFs). The optimal loadings of CNFs determined in this study were 1 wt% for PLA/TEC and 3 wt% for PLA/TA. The findings revealed that the addition of plasticizers lowered the melting and glass transition temperatures, reduced crystallinity from 65% to 40-50%, and improved thermal stability. These results could facilitate the development of more sustainable polymer products, contributing significantly to reducing global plastic pollution.

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