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(57) Abstract :
The present disclosure relates to a method (100) for synthesizing a nanocomposite coating comprising Copper Oxide (CuO) nanoparticles, derived from Coleus amboinicus leaves extract, and incorporated into a biodegradable Polylactic Acid (PLA) matrix. The method involves the extraction of CuO nanoparticles via a sequential process of Coleus amboinicus leaf treatment, complex formation, and calcination. Subsequently, the CuO nanoparticles are incorporated into a PLA solution to form a nanocomposite coating. The coated substrate, composed of Mg-4Zn-1Mn, exhibits antimicrobial and anti-corrosion properties, rendering it suitable for biomedical applications as temporary implants.

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