

## **Bioresorbable orthopaedical nails and plates manufactured by traditional processes**

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The advancement of bioresorbable medical implants represents a significant progression in surgical techniques and has been the focus of several studies in recent years. However, the challenge of managing their corrosion selectivity remains unsolved and critical. Addressing this issue entails the design of a device comprising two interpenetrated structures, each with distinct corrosion behaviours. The predominant types of implants are standardised, such as orthopaedic nails and plates, and their advancement would have a noteworthy impact on the medical industry. However, the successful application of these innovations crucially depends on the adaptability of the manufacturing process for large-scale production.

This work consists of a feasibility study on manufacturing multi-material devices made of Zn – 1.5Mg and P(D,L)LA for bioresorbable scaffolds processed using traditional methods such as metal casting and plastic deformation, which are well known for their scalability and cost-effectiveness. The obtained composite's manufacturing routing and mechanical properties are reported. Additionally, a preliminary investigation into the corrosion and biocompatibility of the obtained device is conducted.