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DISSOLUTION AND MECHANICAL PROPERTIES OF 3D PRINTED POLYLACTIC ACID FOR BIO-IMPLANTS ³

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***Abstract:** In this paper preliminary results of dissolution of 3D printed meshes of PLA (polylactic acid) in a biologically active media are presented. The issue of biocompatible polymers dissolution is important as the knowledge of its mechanism and kinetics allows designing bio-implants with required and time controlled properties. Not only dissolution kinetics but also the change in mechanical properties of biocompatible polymers suitable to be used as implants is important. In this study, we investigated the influence of bioactive media on hardness and tensile behaviour of the PLA. Density, mass loss, hardness and tensile strength of the material after soaking in a bioactive media were determined. Mass loss was determined after different soaking times in order to establish a relationship between the rate of PLA dissolution and the geometry of meshes. The results draw some conditions for next experiments to study the kinetics of the PLA dissolution.*

***Keywords:** Bio-implants, PLA, Polylactic acid, 3D printing, Polymer dissolution, Tensile test.*

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