

Effects of MgOH on mechanical properties and crystallization behavior of PLLA/MgOH composites

박혜선, 홍창국[†]
전남대학교

(hongck@jchonnam.ac.kr[†])

Poly-L-lactic acid (PLLA) has received increased attention from biomedical researchers in recent decades, especially for stent and bone repair, because of its advantageous properties, including its biodegradability, harmlessness, biocompatibility, and processability. Unfortunately, there are still some drawbacks that limit its practical applicability, including brittleness, low strength, and low bioactivities. To overcome these drawbacks, inorganic fillers with excellent bioactivities, such as hydroxyapatite (HA), magnesium oxide whiskers (MgO). These fillers can not only ensure satisfactory osteoconductive in PLLA composites and improve cell adsorption but also neutralized the acidic products produced by PLLA degradation. MgO, which has good biocompatibility, and magnesium ions have no toxicity. The addition of MgO is significantly beneficial in improving both the modulus and tensile strength of PLLA and in preventing Ph reduction, which suppressed inflammation. In this study, PLLA/MgO were prepared through solution casting, and the properties of the composites with different MgO contents were investigated in there of crystallization, mechanical properties, and biodegradability.