Original
Received December 25, 2017
Accepted for Publication February 19, 2018

Synthesis and Properties of Hyperbranched Poly(L-lactide)s Having Glutamic Acid Terminals

Yuuki KOBAYASHI*, Kazuya MATSUMOTO* and Mitsutoshi JIKEI*

*Department of Materials Science, Applied Chemistry Course, Graduate School of Engineering Science, Akita University, Akita 010-8502, Japan
E-mail: mjikei@gipc.akita-u.ac.jp

The introduction of zwitterionic groups improves hydrophilicity and antithrombogenicity of the target materials. In this study, chemical modification of hydroxy terminals of hyperbranched poly(L-lactide)s (AB_2 PLLAs) by glutamic acid (Glu) was performed to introduce zwitterionic hydrophilic groups. The structures of AB_2 PLLAs and Glu-esterified AB_2 PLLAs (AB_2 PLLA-Glus) were confirmed by NMR measurements. The contact angles of AB_2 PLLA-Glus were lower than those of AB_2 PLLA due to the influence of large number of Glu terminals. Microphase-separated morphology was observed on the film of AB_2 PLLA-Glu, which is a promising surface for anti-platelet adhesion.

Keywords : poly(L-lactide) (PLLA), hyperbranched polymers, zwitterionic groups, glutamic acid