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## Synthesis of isosorbide in primary alcohol form and preparation of high elastic polyurethanes based on polycarbonate diol, polycaprolactone diol, bis(2-hydroxyethyl)isosorbide, 1,6-hexamethylene diisocyanate and their biocompatible properties

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This study used ethylene carbonate and potassium carbonate on the natural biomaterial, isosorbide and successfully synthesized the primary di-alcohol-type bis(2-hydroxyethyl) isosorbide. Bio-based polyurethanes were successfully polymerized through simple one-shot polymerization without catalyst by using various ratios of BHIS, polycarbonate diol, polycaprolactone diol, hexamethylene diisocyanate. The molecular weight was increased and the polymerization was made evenly as compared with the polyurethane made of isosorbide. Polyurethane made from PCD diol had very strong strength and polyurethane made from PCL diol showed very flexible elongation. Biocompatibility was confirmed by using bone marrow cell and C2C12 cell. As a result, it was expected to be applied to various medical fields.

### Biography

Suk Min Hong is a Doctoral student in the Department of Nanobiomedical at Dankook University, Republic of Korea. He studies polyurethanes, bio-polyurethanes, isosorbides and natural polymers.

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