

Chemo-enzymatic Synthesis of Lysophospholipid, Monoacylglycerol sulfate and their Biological Effect

Tae-Kil Eom, Hee-Guk Byun, Won-Kyo Jung, Se-Kwon Kim *

Department of chemistry, Pukyong National University

TEL : +82-51-608-837, FAX : +82-51-628-8147

Abstract

Lysophospholipids have been widely studied as the new emulsifying agents, pharmaceutical agents, and food preservative. Lysophospholipids also have several physiological functions such as the mediation of several cellular mechanisms.¹⁾ The kind of fatty acid in lysophospholipids are important in biological activity, therefore, for the synthesis of the biological active lysophospholipid with desirable fatty acid, an easy and simple synthetic approach has been needed.²⁾

In this study we synthesized monoacylglycerol by various lipases and then we modified 3-hydroxy group in the glycerol derivatives by subsequent substitution by phosphate, phosphocholine and sulfate groups and investigated their biological effects³⁾ such as free radical scavenging effect, anti-microbial effect and anticoagulation activity.

References

1. K. Murakami-Murofushi *et al*, Lysolipid mediators in cell signaling and disease.(2002), *Biochimica et Biophysica Acta*, Vol(1582), 1-317.
2. Van Corven, E. J., Van rijswijk, K., Van Der Bend. R. L., Van Blitterwijk, W. J., and Moolenaar, W. H., Mitogenic action of lysophosphatic acid and phosphatidic acid on fibroblasts.(1992), *Biochem. J.*, Vol(281), 163-169.
3. Regine Haftendom and Renate Ulbrich-Hofmann, Synthesis of 2-modified 1,3-diacylglycerol(1996), *Tetrahedron*, Vol(51), 1179-1186.