학술-O-6

인삼에서의 트리터페노이드 진세노사이드의 생합성

김유진, 이옥란, 양덕춘
경희대학교 한방재료가공학과

Triterpenoid Ginsenoside Biosynthesis in *Panax ginseng* C. A. Meyer

Yu-Jin Kim, Ok Ran Lee, Deok-Chun Yang
Department of Oriental Medicinal Materials and Processing, College of Life Science, Kyung Hee University, Suwon 449-701, Korea.

Isoprenoids represent the most diverse group of metabolites, which are functionally and structurally identified in plant organism to date. Ginsenosides, glycosylated triterpenes, are considered to be the major pharmaceutically active ingredient of ginseng. Its backbones, categorized as protopanaxadiol (PPD), protopanaxatriol (PPT), and oleanane saponin, are synthesized via the isoprenoid pathway by cyclization of 2,3-oxidosqualene mediated with dammarenediol synthase or beta-amyrin synthase. The rate-limiting 3-hydroxy-3-methylglutaryl coenzyme A reductase (HMGR), which is the first committed step enzyme catalyzes the cytoplasmic mevalonate (MVA) pathway for isoprenoid biosynthesis. DXP reductoisomerese (DXR), yields 2-C-methyl-D-erythritol 4-phosphate (MEP), is partly involved in isoprenoid biosynthesis via plastid. Squalene synthase and squalene epoxidase are involved right before the cyclization step. The triterpene backbone then undergoes various modifications, such as oxidation, substitution, and glycosylation. Here we will discuss general biosynthesis pathway for the production of ginsenoside and its modification based on their subcellular biological functions.

Key words : Isoprenoids, HMGR, MVA, DXR, MEP

Acknowledgement : This work was supported by a grant from the Next-Generation BioGreen 21 Program (SSAC, grant # : PJ008204), Rural Development Administration, Republic of Korea