

Contribution of Mevalonate and Methylerythritol Phosphate Pathways to Polyisoprenoid Biosynthesis in the Rubber-Producing Plant *Eucommia ulmoides* Oliver

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The biosynthetic origin of isopentenyl diphosphate in the polyisoprenoid biosynthesis of the rubber-producing plant *Eucommia ulmoides* Oliver was elucidated for the first time by feeding experiments using ¹³C-labeled isotopomers of (*RS*)-mevalonate, 1-deoxy-D-xylulose-3,4,5-triacetate, 2C-methyl-D-erythritol-1,2,3,4-tetraacetate, and pyruvate. After ¹³C-labeled isotopomers were fed to the young seedlings, the polyisoprenoid fractions were prepared and analyzed by ¹³C NMR. The NMR data showed that the isoprene units of polyisoprenoid derived from isopentenyl diphosphate, which was biosynthesized using both mevalonate and 1-deoxy-D-xylulose-5-phosphate in *E. ulmoides*. It is assumed that the cross-talk of isopentenyl diphosphate, derived from both pathways, occurs during the biosynthesis of polyisoprenoid; therefore, it was observed in the formation of low-molecular weight isoprenoids.

Key words: Polyisoprenoid, Isopentenyl Diphosphate, *Eucommia ulmoides*