

# **Erythorbyl Laurate: A Promising Candidate for Novel Antimicrobial Agent with Antioxidative Activity**

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It has been reported that lauric acid and its derivatives possess growth-inhibitory effects against a wide range of microorganisms and the antimicrobial activity was markedly influenced according to the non-fatty acid moiety. On the one hand, erythorbic acid, a stereoisomer of L-ascorbic acid, has been extensively used as an antioxidant, but cannot be applied to lipid-based foods due to poor lipophilicity. For these reasons, our research group has performed lipase-catalyzed esterification between lauric acid and erythorbic acid in the previous work to produce novel antimicrobial agent with antioxidative activity (*Food Chemistry* 129: 59-63, 2011). The objective of present study was to verify antimicrobial and antioxidative abilities of the esterified derivative of lauric acid (6-O-lauroyl-erythorbic acid, erythorbyl laurate). As anticipated from the reports of lauric acid, erythorbyl laurate showed growth-inhibitory effect on gram-positive pathogens such as *Listeria monocytogenes* and *Staphylococcus aureus*, while it had no significant difference compared with negative control against gram-negative microorganisms. However, it is worthy of attention that erythorbyl laurate showed greater antimicrobial activity than lauric acid. It is plausible to assume that the bacteriostatic activity arises from the extension of lag phase because the increase in lag time was in proportion to the concentration of erythorbyl laurate treated. From DPPH radical scavenging assay, it was found that antioxidative activity of erythorbyl laurate was retained, and EC<sub>50</sub> was the value of 331.4 μM. The results indicated that erythorbyl laurate could be a promising candidate for novel antimicrobial agent with antioxidative activity.