

Studies on Biogenesis and Physiological Role of "Green Odour" by Plant

Akikazu Hatanaka

Department of Biological Chemistry, Yamaguchi University

1677-1, Yoshida, Yamaguchi 753, Japan

Summary

(3*Z*)-Hexenol and (2*E*)-hexenal, the so-called "leaf alcohol" and "leaf aldehyde", are widely distributed in leaves, vegetables, and fruits along with other C6-compounds, such as (3*E*)-, (2*E*)-hexenol, their corresponding aldehydes, *n*-hexanol, and *n*-hexanal. They are responsible for the so-called "green odour" characteristics of macerated leaves. ¹⁴C labelling experiments carried out with tea chloroplasts revealed that the precursors of these C6-compounds are linoleic and linolenic acids. The pre-cursors are formed by hydrolysis of membrane lipids by acyl hydrolase; then they are oxygenated to form 13(*S*)-hydroperoxides by lipoxygenase activity. The hydroperoxides are cleaved to C6-compounds and 12-oxo acids by hydroperoxide lyase. This paper concerns the substrate specificity of two key enzymes, lipoxygenase and hydroperoxide lyase.