Effect of Polyphenol Oxidase from Several Fruit Extracts on Halitosis Inhibition

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Abstract

Polyphenol oxidase(PPO) from apples was isolated to know the deodorizing mechanism by applying the enzyme and the deodorizing activities of PPO of apple extracts on pH and substrate were investigated. Apple extracts were separated into two parts of low and high molecular weights to evaluate the halitosis inhibition by measuring the reduced amount of methyl mercaptan. The deodorizing activity of low molecular fraction on halitosis inhibition was increased by adding crude polyphenol oxidase of apple extracts. The deodorizing activity was high over 80% in the range of pH 6.5~8.5. In the case of the deodorizing activity of polyphenol oxidase, *ortho*-diphenol was determined to be the good substrates by the high activities of chlorogenic acid and catechol, showing 81.3% and 36.8% inhibition, respectively. These basic data will provide an optimum manufacturing condition for commercial products of apple extracts.

References

1. Kaji T. (1976), Analysis of volatile sulfur compounds in mouth air by gas chromatography, *Nippon Shishubyo Gakkai Kaishi* **18,** 1~12.
2. Rivas N. D. J., Whitaker J. R. (1973), Purification and some properties of polyphenol oxidase, *Plant Physiol.* **52,** 501~503.
3. Wieslaw O, Lee C. Y., Jaworski A. W., Price K. R. (1988), Identification of some phenolic compounds in apple, *J. Agric. Food Chem.* **236**, 430~432.
4. Yasuda H, Arakawa T. (1995), Deodorizing mechanism of (-)-epigallocatechin gallate against methyl mercaptan, *Biosci. Biotech. Biochem.* **59**(7), 1232~1236.