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Influence of Polyphenol and Ascorbate Oxidases during Cooking Process on the Radical-Scavenging Activity of Vegetables

Tomoko YAMAGUCHI[1)], Mamiko KATSUDA[2)], Yuka ODA[2)], Junji TERAO[3)], Kazuki KANAZAWA[4)], Shunji OSHIMA[5)], Takahiro INAKUMA[5)], Yukio ISHIGURO[5)], Hitoshi TAKAMURA[1)6)] and Teruyoshi MATOBA[1)2)]

1) Department of Food Science and Nutrition, Nara Women's University
2) Graduate School of Human Culture, Nara Women's University
3) Department of Nutrition, School of Medicine, The University of Tokushima
4) Department of Life Science, Graduate School of Science and Technology, Kobe University
5) Research Institute, Kagome Co., LTD.
6) KYOUSEI Science Center for Life and Nature, Nara Women's University

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The influence of polyphenol oxidase and ascorbate oxidase on radical-scavenging activity and contents of total phenol, chlorogenic acid, and ascorbic acid in vegetables during the cooking process were investigated. In the case of burdock and lettuce, which have a high activity of polyphenol oxidase, the radical-scavenging activity and the content of total phenol and chlorogenic acid decreased drastically within 1 min. In the case of broccoli, however, only a small decrease of radical-scavenging activity was observed, and total phenol and chlorogenic acid decreased almost not at all. The decrease of the activity in broccoli depended on the oxidation of ascorbic acid by ascorbate oxidase. None of these compounds decreased after the enzymes had been inactivated by heating.

Keywords: radical-scavenging activity, polyphenol oxidase, polyphenol, chlorogenic acid, ascorbic acid, ascorbate oxidase

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