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应用电喷雾质谱快速鉴定谷胱甘肽与茶多酚化合物EGCG的反应产物

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摘要

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Rapid Identification of Reaction Products of Glutathione with Tea Polyphenol (-)-Epigallocatechin-3-Gallate Using Direct Injection Electrospray Ionization Mass Spectrometry

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Abstract (-)-Epigallocatechin gallate (EGCG) is a major bioactive component in leaves of green tea, and has being widely investigated by scientists for its various physiological activities. In this work it was found for the first time that EGCG can react with glutathione (GSH) to form GSH conjugates of EGCG in potassium phosphate buffer, without any peroxidase/hydrogen peroxide existence. Using direct injection electrospray ionization tandem mass spectrometry, we rapidly identified the reaction products of GSH with EGCG. The MS/MS spectra of GSH conjugate with EGCG provided enough information to confirm that GSH is covalently bound to the 2'- or 6'-position of EGCG.. Finally, the reaction mechanism of EGCG with GSH in potassium phosphate buffer without any peroxidase/hydrogen peroxide existence was proposed.

Key words _ (-)-Epigallocatechin gallate _ glutathione _ quinone _ mass spectrometry

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