

培養肝細胞における金属誘発脂質過酸化への カテキン群の抗酸化効果の相違

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Differences in Antioxidative Efficiency of Catechins In Various Metal-Induced Lipid Peroxidation In Cultured Hepatocytes

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ABSTRACT: The effects of tea catechins, including (-)-epicatechin (EC), (-)-epigallocatechin (EGC), (-)-epicatechingallate (ECg) or (-)-epigallocatechingallate (EGCg) on the lipid peroxidation induced by either ferrous (Fe), copper (Cu) or vanadium (V) ions were examined in normal and α -linolenic acid-loaded (LNA-loaded) cultured rat hepatocytes. Each catechin displayed a marked variation in its antioxidative potency depending on the added metal ion species, whereas dibutyl hydroxy toluene (BHT), a typical lipid radical scavenger, exhibited a similar antioxidative potency with the all metal ions. Only in LNA-loaded hepatocytes, EC was antioxidative at 20 μ M Fe concentration but became prooxidative above 50 μ M Fe concentration. Catechins such as (+)-catechin, (+)-epicatechin and (\pm)-catechin also acted as prooxidants at high Fe concentrations in LNA-loaded hepatocytes. These results suggest that the metal-chelating property of catechins may play a major role in determining their antioxidative activity in cultured hepatocytes.

抄録 (-)-epicatechin (EC), (-)-epigallocatechin (EGC), (-)-epicatechingallate (ECg)そして(-)-epigallocatechingallate (EGCg)の抗酸化効果を正常及び α -linolenic acid脂肪培養肝細胞においてferrous (Fe), copper (Cu)、vanadium (V)イオンで誘発させた脂質過酸化に対して調べた。一般的な抗酸化剤であるBHTはいずれの金属イオン誘発脂質過酸化に対しても同等な効果を示したのに対し、カテキン類はそれぞれ異なる効果を示した。又、脂肪培養肝細胞においてECは他のカテキン類とは異なって脂質過酸化促進作用を示した。カテキン類の抗酸化効果発現には金属キレート作用が重要な役割を果たしている事が示唆された。