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## Scavenging effects of tea catechins on superoxide and hydroxy radical by Tea catechins

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Tea catechins, the most important compounds in tea polyphenols, can efficiently scavenge superoxide anion free radical ( $O_2^{\cdot-}$ ), hydroxyl radical ( $\cdot OH$ ) and lipo-radical. The mechanism of scavenging active oxygen free radicals was investigated by ESR spin trapping technique and Chemiluminescence. Results showed that various tea catechins constitute an antioxidant cycle in accordance with the decreasing order of the first reductive potential, and produce the effect of cooperative strength each other. Esterificated catechins could scavenge active oxygen free radicals more effectively than the non-esterificated ones. When  $\cdot OH$  and  $O_2^{\cdot-}$  were scavenged by (-)-epigallocatechin gallate [(-)-EGCG], the stoichiometric factors were 6, and the rate constants of scavenging reaction reached  $7.71 \times 10^6$  and  $3.52 \times 10^{11}$  L · mmol<sup>-1</sup> · s<sup>-1</sup>, respectively. In the mean time, tea catechins could scavenge superoxide anion free radical ( $O_2^{\cdot-}$ ) and hydroxyl radical ( $\cdot OH$ ) in a dose dependent manner, and more effectively than Vitamin C in water soluble and Vitamine E in fat soluble condition. But at higher concentration or pH value, tea catechins can induce the prooxidant.