

RED WINE AND GREEN TEA DERIVED POLYPHENOLS AS NEUROPROTECTIVE AGENTS AGAINST AGE-RELATED NEUROLOGICAL DISORDERS

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Recent epidemiological studies support a key role for polyphenols in the purported beneficial effects of red wine and green tea in age-related neurological disorders such as Alzheimer's disease (AD). Considering the deleterious role of β -amyloid ($A\beta$) in the etiology of AD, we investigated the potential effectiveness of a green tea flavanols against toxicity induced by ($A\beta$)-derived peptides using cultured rat hippocampal cells. Our results showed that epigallocatechin gallate (EGCG) appeared to be the most potent gallate ester, whereas epicatechin and epigallocatechin were ineffective. Similarly, the red wine constituent known as resveratrol was able to protect against $A\beta$ -induced toxicity. Pre-treatment with a PKC inhibitor blocked the effect of resveratrol, suggesting that PKC is involved in its protective effects in this model. Moreover, EGCG inhibited the formation of $A\beta$ -derived diffusible neurotoxin ligands (ADDLs). Taken together, these results indicate that catechin gallates and resveratrol may contribute to the neuroprotective effects of green tea and red wine. These data also support the idea that red wine and green tea may reduce age-related neurodegenerative diseases such as AD via its inhibitory action on $A\beta$ -associated cell death.