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Cytotoxicity and Radical Intensity of Eugenol, Isoeugenol or Related Dimers

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To investigate the possible link between radicals and cytotoxicity of eugenol-related compounds, dimer compounds were synthesized from eugenol or isoeugenol. Both the cytotoxic activity and the DNA synthesis inhibitory activity of those compounds against a salivary gland tumor cell line (HSG) and normal human gingival fibroblast (HGF) were decreased in the order of dehydrodiisoeugenol, α-diisoeugenol > isoeugenol > eugenol > biseugenol. Higher cytotoxic activity of isoeugenol dimers was thought to be induced by interaction with cell membranes via the lipophilic radical.