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Radical Intensity and Cytotoxicity of Butylated Hydroxyanisole and its Orthobisphenol Dimer

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The radical intensity of BHA(4-Hydroxy-3-t-butylanisole) and its dimer (3,3'-Di-t-butyl-5,5'-dimethoxy-1,1'-biphenyl-2,2'-diol, Bis-BHA) were compared with their cytotoxic activity. ESR spectroscopy showed that BHA produced characteristic five peaks of radical under alkaline condition(pH>9.5). BHA showed higher cytotoxic activity against salivary gland tumor cell line than against normal human gingival fibroblast. On the other hand, Bis-BHA did not produce any detectable amounts of radicals at wide range of pH, corresponding with its weaker cytotoxic activity as compared with BHA. BHA scavenged DPPH radical and superoxide anion, more efficiently than Bis-BHA.