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Induction of SOS response by autoregulatory factors of microorganisms

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Abstract

Among examined microbial growth regulators of alkyl hydroxybenzene group (hexylresorcinol, methylresorcinol, and hydroxyethylphenol), only hexylresorcinol induces cellular SOS response, demonstrating a dose-dependent increase of the induction factor in the SOS chromotest with the Escherichia coli PQ37 strain. At the highest of used concentrations (100 μg/ml), hydroxyethylphenol and nonalkylated resorcinol were shown to exert a weak toxic effect, reducing the activity of constitutive alkaline phosphatase, but did not induce SOS response. Nontoxic methylresorcinol did not induce genome damage, which can trigger SOS functions. It is concluded that substitutions in phenolic ring affect genotoxic activity of alkylresorcinols.