

Study of Mutagenic Activity of Fullerene and Some of Its Derivatives Using His⁺ Reversions of *Salmonella typhimurium* as an Example

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Abstract

The influence of three new derivatives of fullerene C₆₀ ([61]dimethoxyphosphoryl[61]carbethoxy-methano[60]fullerene, [61](dimethoxyphosphoryl[61]carbmethoxy-methanofullerene, and 1-methyl-2-(3,5-ditretbutyl-4-hydroxy-phenyl),3,4-fulleropyrrolidine) on the appearance of His⁺ reversions in the *Salmonella typhimurium* strain BA13 was studied. It was ascertained that the effect of fullerene derivatives on the occurrence of mutations depends on the type of the molecular group with which fullerene interacts. The biological effect is determined not only by the action of the group associated with fullerene. The dependence between the mutagenic effect and properties of the solvents was detected. Exposure to visible light of the culture treated with fullerene derivatives was found to have an antimutagenic effect in the case of [61]dimethoxyphosphoryl[61]carbethoxy-methanofullerene[60]. For two other derivatives, the differences between experimental and control variants were statistically nonsignificant.

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