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POSSIBLE APPLICATION OF METAL SENSITIVE RED FLUORESCENT PROTEINS IN ENVIRONMENTAL MONITORING

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Abstract

The metal sensitivity and selectivity of two fluorescent proteins was investigated. The studied proteins are mutant forms of the red fluorescent protein (DsRed); according to our results, both proteins showed sensitivity to the presence of copper[II] and nickel ions. The fluorescence intensity of the proteins has decreased significantly in the presence of copper ions in the micromolar range. Metal binding by these proteins is a reversible process, as addition of a chelating agent liberates the bound ions. Considering these advantageous properties, the studied proteins can be used as copper ion biosensors.

Key words: biosensor, fluorescence, metal ion, quenching

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