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Antioxidant and Antimutagenic Potential of Extracts of Some Agavaceae Family Plants

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Abstract

© 2016, Springer Science+Business Media New York.The application of natural antimutagens and antioxidants, particularly those derived from higher plants has been seen as a promising approach to the protection of human health. In this work, we studied methanolic extracts from Sansevieria cylindrica, Sansevieria trifasciata, and Polianthes tuberosa plants focusing on their antioxidative and antimutagenic capacities based on the following parameters: inhibitory activity on lipid peroxidation, suppressing ability on direct-acting mutagen sodium azide-induced mutagenesis in Salmonella typhimurium cells. A clear dose-dependent decrease in lipid peroxidation was observed with all the extracts tested. Extracts from leaves of P. tuberosa and rhizomes of S. cylindrica and S. trifasciata (1 mg/mL) displayed the highest antioxidant effect. At the same time, extracts from rhizomes of S. cylindrica and S. trifasciata significantly reduced the sodium azide-induced mutations. The highest antimutagenic activity (76 %) in the S. typhimurium TA100 strain was obtained for the S. cylindrica rhizomes extract (1 mg/plate). We propose that the observed protective effects of plant extracts tested may correspond to a synergic participation of several secondary metabolites and mainly to polyphenolic compounds.

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Keywords

Agavaceae family, Antimutagenic activity, Antioxidant potential, Plant extracts, Secondary metabolites