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The present publication was designed to popularize scientific research activity in the field of chemistry and to discuss modern chemical problems on the international level. The digest is intended for scientists, students, postgraduates and for wide range of readers interested in problems in chemistry.

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The effect of new phenol derivatives on SOD-protector activity of the Russian sturgeon liver

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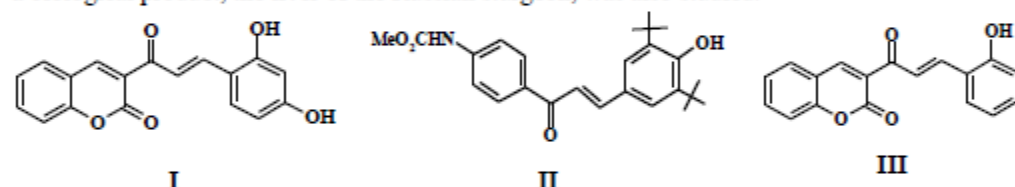
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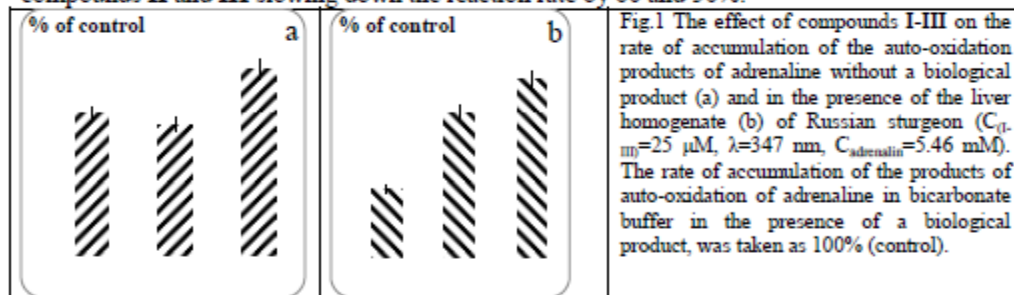
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Superoxide dismutase (SOD) is the metalloenzyme of the antioxidant protection of cell membranes against the damaging effects of highly toxic reactive oxygen species (ROS), which are generated in large quantities when activated by lipid peroxidation. SOD is present in all cells that consume oxygen and is an essential element of antioxidant protection as it catalyzes the dismutation of singlet oxygen produced by the passage of electrons through the respiratory chain. The activity of this antioxidant enzyme in the body decreases with various pathologies, therefore, for successful treatment, drugs with SOD-protector activity in biological media are necessary.

In this work the effect of new derivatives of hindered phenol (I-III) on the rate of superoxide anion-radical ($O_2^{\cdot-}$) generation in the auto-oxidation reaction of adrenaline in an alkaline medium was investigated. The effect of the compounds on the SOD-protector activity of a biological product, the liver of the Russian sturgeon, was also studied.



It was found that all compounds exhibit both antiradical and SOD-tread activity (Fig. 1). Compounds I and II reduce the rate of adrenaline oxidation in alkaline bicarbonate buffer by 50%, and compound III by 25%. Compound I shows the highest SOD-tread activity in the presence of the Russian sturgeon liver homogenate, reducing the $O_2^{\cdot-}$ generation rate by 80%, compounds II and III slowing down the reaction rate by 60 and 50%.



Thus, in this work, the antiradical activity of new derivatives of spatially obstructed phenol and their ability to increase the SOD-protector activity of the Russian sturgeon liver homogenate was discovered, which allows considering these compounds as potential antioxidants.

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