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Theoretical Model of Lipid Peroxidation Kinetics for Complexes of Cytochrome *c* and Cardiolipin with Participation of Antioxidants

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It is represented the kinetic model of lipid peroxidation process take place in the lipid membranes owing to a peroxidase activity of the complexes of cytochrome *c* and cardiolipine. The theoretical description of the studied kinetics includes two pathways: enzymatic and non-enzymatic, and takes into account the presence of direct-acting antioxidant: the molecules that act as the free radical scavengers, directly exhibiting a relatively high antiradical activity. The enzymatic pathway includes the reactions involving the complexes of cytochrome *c* and cardiolipin. The non-enzymatic pathway includes the reactions involving the free lipid radicals and antioxidant molecules. The obtained system of differential equations allows to simulate the kinetics of the lipid peroxidation process both accounting the inhibitory effect of the antioxidant and without it, and to test the antiradical activity of various types of antioxidants, as well as to find some unknown kinetic parameters by performing a comparison of the theoretical kinetic curves with the experimental ones.