

Effects synergisms in joint action α -tocopherol and enzymes antioxidants (katalasa, peroxidasa) at oxidation modelling heterogeneous lipids systems *in vitro* in the presence of biologically active oligopeptides

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Abstract

In system *in vitro* at various ways of initiation character of influence on process of oxidation of some individual oligopeptides is investigated: glysilylglysilyllysine (Gly-Gly-Gly), carnosine карнозина (β -Ala-L-His), glutathione (γ -Glu-Cys-Gly), vilon (Lys-Glu), vesugen (Lys-Glu-Asp), pinealon (Glu-Asp-Arg), honluten (Glu-Asp-Gly), ovagen (Glu-Asp-Leu), christagen (Glu-Asp-Pro), epitalon (Ala-Glu-Asp-Gly), kartalacs (Ala-Glu-Asp). It is shown that oligopeptides brake Fe^{2+} the-induced - process of oxidation at the expense of chemical linkage of kationov-initiators and in 2-3 times accelerate the AIBN-initiated oxidation. An exception make peptides, having in the structure a heterocyclic fragment (the rest imidasol) (carnosin), or SH-group (glutathione). It is established that in the course of oxidation липидных systems with пептидами it is not formed nitrochil radicals, transformation products пептидов do not co-operate with modelling markers nitrochil radicals. It is shown that at presence peptid speed of accumulation hidroperoxids considerably increases, speed of an expenditure bioAO, in particular, increases; β -carotin (β -C). Peptides a different chemical structure show effect of antagonism with bioantioxidants (bioAO): α -tocopherol (α -TF) and β -C, reducing them ingibitings action to 80%. Ascorbic acid (AA) in system with peptides and bioAO promotes increase of stability of system (no more than on 20%, at high concentration). It is shown that joint-stock company enzymes (katalasa, peroxidasa a horse-radish (PX) increase oxidising stability of system in direct ratio their concentration. At comparable mass fractions of enzymes in a mix $1.3 \times 10^{-2}\%$ (5.2×10^{-7} mol/l каталазы and 2.9×10^{-9} mol/l PX) speed of oxidation decrease in 3 and 4 times, and the effect of inhibition increases in 5 and 6 times accordingly. It is established that in operation a binary composition α -TF and enzymes (catalasa, PX) the effect synergisms is shown. In comparison with additive action of components efficiency of a mix increases in tens times. The effect synergisms in operation is directly proportional to a mix as quantity α -TF, and enzymes.