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FUNCTIONALIZED POLYMER ANTIOXIDANT USED IN THE DRUG NITROSATION

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Nitrosocomposites (NNC) are a major class of chemicals carcinogenic, mutagenic, teratogenic, and immunotoxic agents, posing a serious threat to human health [1-3]. A large number of drugs contain nitrosatable groups such as secondary amines, tertiary amines, amides, which can produce NNC through interaction with nitrite [4]. The stomach provides a suitable enviroment with low pH level of interaction favoring amines with nitrite. NNC formed from nitrosating process of drugs can lead to colorectal cancer, bladder, stomach and. a. Thus, there is currently a strong interest in potential toxicity study of orally administered drugs which contain secondary amine group [2-4].

It conducted the study process of diclofenac sodium nitrosating so after diclofenac variation in the system as well as nitrite. Inhibition was studied by using the nitrosation process natural anti-oxidants (such as dihidroxifumaric acid (DFH4), resveratrol), as well as polymers functionalized with antioxidants. Functionalization was conducted DNA-DFH4 at different mass ratios. The complex obtained was used further in the inhibition of nitrosating process of diclofenac sodium. With an increase in the concentration of the dihidroxifumaric acid in the complex, increases the inhibitory activity of the complex. The use of functionalized polymer antioxidants in inhibiting the nitrosation process is more efficient than the use of pure antioxidants, which has demonstrated the inhibitors ability and antioxidant activity.

Conclusions:

By increasing concentration of nitrite ion in the system increases the rate of consumption of the DCF as the formation of N-nitrosocompounds depends on the nitrite ion concentration.

The speed of the nitrosating process of diclofenac sodium with nitrite ions in the presence of natural antioxidants (DFH_4, Resveratrol) depends on the concentration of these inhibitors; the higher their concentration in the system is, the lower nitrosation process takes place.

The inhibitory activity of the complex obtained DNA: DFH_4 increases as the concentration of antioxitant increases, respectively mass ratio DNA: DFH_4 = 1: 3, inhibition is maximal, which also shows that the antioxidant activity of functionalized polymer DFH_4 is higher than of free antioxidant.

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