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EFFECTS OF THE ANTIMUTAGEN OF 1,4-DIHYDROPYRIDINE  
SERIES ON HEAT-SHOCK PUFFING AND CHROMOSOME  
DISJUNCTION IN MEIOSIS IN *DROSOPHILA* ASSAYS.

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The system of heat shock proteins (HSPs) performs an universal stabilizing function and provide the primary cell response to stress in different organisms. Prof. R. Goncharova has substantiated the hypothesis according to which a protective effect of some antimutagens can be mediated by modulating the HSPs system. We study some antioxidants of 1,4-dihydropyridine (1,4-DHP) series as possible modulators of the HSP system. It was shown earlier that some compounds of this group are effective antimutagens in different test-systems.

The specificity of their effects in *Drosophila* has indicated predominantly indirect mechanisms of their action including modulation of DNA repair. In our experiments, another indirect mechanism, namely ability of these compounds to induce the appropriate heat shock puffs on polytene chromosomes of salivary gland in *Drosophila* larvae, was studied. Wild type strain *Canton S* and the mutant strain *l(1)ts-403* with disturbed HSP synthesis were used. They were treated by antimutagens at the larval stage. Third instar larvae were placed in solution of antimutagens at 24°C for 30 min. As the control, the salivary glands were kept in 3% sugar solution. After exposure, glands were painted. Salivary gland permanent preparations were made 15, 30 45 min after treatment. In both strains, one of the compounds tested, DHP, at the dose of 60mM induced five heat shock puffs in the loci 63B, 67B, 87A, 87C and 93D on the third chromosome. These puffs were observed following 15min larval exposure to the compound.

The second compound, glutapyrone, did not induce heat shock puffs in spite of a wide range of applied concentrations (10–120 mM) and different exposure. In terms of the fact that HSPs are important for normal

chromosome functioning in meiosis, the impact of DHP on chromosome disjunction was studied in *Drosophila* females of the same strains. High temperature was shown to increase the yield of the sex chromosomes nondisjunctions and chromosome losses in flies of both strains. Their pre-treatment with the antimutagen at the dose of 60mM reduced the frequency of irregular progeny in females of both strains but this effect was particularly pronounced in the temperature-sensitive flies deficient in HSP synthesis.

The data obtained indicate ability of the antimutagens of 1,4-DHP series to modulate the response of HSP system to the temperature stress and are the basis for further studying all the aspects of this problem.

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