

COMPARISON OF THE EFFECTS OF FAR AND NEAR ULTRAVIOLET RADIATION  
AND THEIR PHOTOREACTIVATION ON SOME PROTOZOANS

СРАВНЕНИЕ ЭФФЕКТОВ КОРОТКОВОЛНОВОГО И ДЛИННОВОЛНОВОГО  
УЛЬТРАФИОЛЕТОВОГО ИЗЛУЧЕНИЯ И ИХ ФОТОРЕАКТИВАЦИИ У НЕКОТОРЫХ  
PROTOZOA

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1. A comparison of the action of a wide range of doses of far (254 nm) and near (320-380 nm) UV radiation on the survival, division rate and some patterns of oxidative metabolism has been performed on the several strains of Paramecium caudatum and Amoeba proteus. Strong after-effects were observed. They were manifested as acceleration or retardation of cell division during 6-10 days at sublethal doses; and as prolonged cessation of cell-division and cell-death or recovery within 2-4 weeks at lethal doses. Both far and near UV used in isoeffective doses showed similarity in their effects (the extent of inhibition of the 1-st, 2-nd and subsequent cell cycles, the dynamics of cell death, terms and rates cell spontaneous recovery, the character of changes in glycogen, fat and succinate dehydrogenase content).
2. The capacity of protozoans to photoreactivate the damages induced by far and near UV rays has been investigated. The effects of both types of UV used in isoeffective doses were decreased to the same extent by illumination of cells with visible light; terms and rates of the recovery were similar too.
3. Strains of Paramecium and Amoeba showing an equal sensitivity to far and near UV demonstrated remarkable differences as regards the sensitivity to near UV. The ploidy of cells was a very significant factor for their resistance to far but not to near UV radiation.
4. The results obtained suggest that despite the similarity of final cytological effects produced by far and near UV, and equal degree of their photoreactivability, the mechanisms responsible for the cell resistance to these types of UV are different.

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