

BIOASSAY FOR MONITORING OF BACKGROUND GEOHELEOPHYSICAL ENVIRONMENT

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The actual current questions in chronoastrobiology and chronomedicine (Halberg et al., 2000) are focused on the further development of the available biosensor systems providing longitudinal uninterrupted registrations the detectable responses to a weak nonthermal environmental cues. Being sufficiently sensitive the de-etiolated plants systems response mainly on a Solar photic, chlorophyll or phytochrom mediated stimuli. Thus, their expected responses may be superimposed with such impacts. Because of that, we prefer to use the either dry dormant or etiolated germinated seeds where chlorophyll and phytochrom photoreceptor is minimized. It is widely accepted that in critical transitional moments in embryo development or further ontogeny the susceptibility may be enlarged essentially as against intermediate stages. The seed germination is characterized by a number of such transitional events. The further advantage of our way based on the use of either individual or cooperative, statistical properties of assembly of objects. There should be taking into account that some responses may be detected only on a population level as a statistical property of assembly. Thus, we use the first derivatives of temporal de-trended indices, particularly the rate of germination after preliminary subtraction of temporal trend in seeds cohort germination time-course. At last, but not least, which seems us to be most important of all, attaches the suggested underlain mechanisms of a weak signals reception and the hypothetical target for the weak heliogeophysical factors. In any case, often the effects disturb the parameters of eigen endogenous biorhythms in objects only, and do not change the temporally averaged physiological indices. These criteria were used for selection of plant species which show the explicit biorhythmic properties in any physiological indices. The application of these approaches is demonstrated on the example of different temporal periods, including 2000 July – August which were marked by a number of important geoheleophysical events.