

## Investigations on Deuterium's Grade of Substitution in the Swiss Mice's Body at the Administration of Deuterium Depleted Mediums

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In over 70 years which have passed since deuterium was discovered in natural water [1] many experiments were made for the statement of its effects on living matter. The replacement of the hydrogen with deuterium represents an environmental alteration at which the organism (*in vivo*), respectively the cells (*in vitro*) if they can't accommodate will disappear. In this way deuterium's isotopical abundance variations can be compared with the environmental stress factors (temperature's variations, nourishment quantity, pollutants, radiations, etc.)

It was demonstrated that while the normal quantities didn't have harmful effects, the increase of ambiental deuterium concentration (in culture mediums, development medium, etc), respectively the increase of deuterium's intrinsic concentration through several methods determines structural, metabolic and functional alterations in different grades [2, 3, 4].

In comparison with the biological modifications produced by the deuterium excess in water, concentration reduction effects are less studied. The few data published concern the fibroblasts' growth rhythm inhibition in the culture and the development of the tumours transplanted at rats [5, 6], the growth of basal tone and of vascular reactivity at rat [7] and the growth of defense capacity of the organism and of rats' resistance at radiations [8]. General aspect of the induced general reactivity modifications at prolonged administration of deuterium depleted water was of stimulation of the general reactivity, reduction of harmful effects of different noxious agents, especially of those which act through the intensification of the oxidative metabolism or through the induction of oxygen's free radicals.

Starting with those observations, it was proposed the study of deuterium's substitution grade by hydrogen at the prolonged administration of water with low content in deuterium at Swiss mice. The results show that in natural conditions, the organism has the tendency to accumulate deuterium; the grade of deuterium depletion seems to be under influence both of specimen genotype and phenotype and behavior, and also of deuterium's depleting medium concentration (which's effect is cumulated in time).

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