# ON THE MECHANISM OF HYDRATED ELECTRONS REGENERATION IN ALKALI AQUEOUS SOLUTION AFTER IRRADIATION BY LIGHT (WAVE LENGTH >700nm)

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It has been experimentally established that on photoexcitation of hydrogen-saturated alkali solution by light in the UV region of the spectrum, hydrated electrons were formed. As one would expect, disappearance of hydrated electrons occurred according to a second-order law. We was supposed that the regeneration of the hydrated electrons is due to the optical excited of two-electron bound dimers with the next decay its on two hydrated electrons. On of the objectives of the present investigation was calculation of the electron excited states of the two-electron dimers. In the framework of continual approximation of the adiabatic and strong coupling limit a scheme was developed for calculations of the ground state and the optical excitation spectrum of the bound state of two-electron dimer. The process leading to decay may consist of different steps and takes a number of alternative courses. It is shown that probability are next transitions: sigma singlet state to sigma singlet state (wave length 905nm) and sigma singlet state to pi singlet state (wave length 877nm). In the first case the decay is going from intermediate triplet term. In the second case pi term is repulsive in all inter electron distances. We have studied both the ways that are considered to lead to the disruption of dimers. Both possibility supplement each other. This mechanism is real the conversion of two-electron dimers into two hydrated electrons. The experimental data agree with these theoretical results.