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Application of bipolar gas discharge for water sterilization from *S.aureus* and *E-coli* ANATOLIY TARAN, ANDRIY OKHRIMOVSKYY, PETRO KOMOZYNSKYI, OLEKSANDR KYSLYTSYN, National Aerospace University, SVITLANA TARAN, NATALIYA FILIMONOVA, National University of Pharmacy, VIKTOR LESNOY, DARIA ORANSKA, National Aerospace University — Recently, water treatment by gas discharge above the surface of the liquid has attracted a lot of attention. In most cases, however, the unipolar power source is used. Bipolar pulses of high voltage and current can increases degree of water sterilization from organic compounds, both chemical and bacterial since non equilibrium atmospheric plasma contains not only electrons but also positive and negative ions as well as an excited molecules or atoms and active radicals. Heavy charged particles of both signs, accelerated by bipolar electric field, can easily destroy chemical and biological contaminants in water. To evaluate this phenomenon, high voltage bipolar pulse generator was used. The amplitude of the pulse voltage was approaching value of 200 kV at the discharge ignition. The repetition time was varied from 1 to 14 milliseconds. Current pulse had a shape of a superposition of bipolar pulses with decaying amplitude. Liquid surface was used as a cathode or anode.Two types of contaminants, *S.aureus* and *E.coli*, with was 1.5×10^8 CFU/mL were treated by bipolar high voltage pulse discharge. After 30 minutes of exposition, no contaminants were observed within the water.

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