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Preparation of Plasma Activated Water by Gas-Jet assisted Nanosecond Pulsed Discharge in the Water

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Plasma activated water (PAW) has gained increasing attentions for a wide range of applications in the biomedical fields. Especially PAW are known to inactivate microbial cells effectively. Gas-jet assisted nanosecond pulsed discharge in the water was used to produce PAW. Nanosecond high voltage pulses from a five-stage Marx-generator were applied to two electrodes installed in the distilled water. During the pulse application, compressed air jet makes an air channel between the two electrodes. The physicochemical properties of the PAW at different process time ware evaluated, including pH, oxidation reduction potential (ORP), conductivity and nitrate ion density. The results showed that this type of discharge was very effective to produce a large amount of PAW in short time.

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