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ABSTRACTS

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Non-Thermal Plasma Aided Soil Decontamination

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Low temperature atmospheric pressure plasmas together with advanced oxidation techniques are alternative to conventional chemical methods of soil decontamination.

Soil contaminants might be distributed in [1]: soil matrix, vapour phase, non-aqueous phase, and groundwater. The processing of soil itself depends on several factors, for example: type of soil (content of water, organic compounds, consistence, and structure), type of pollutant, treatment technique, geological and atmospheric circumstances.

Ozone generated during electrical discharges seems to be especially potential for the soil treatment because of its high water solubility, what makes it applicable in both gaseous and aqueous phase.

The soil sterilization system using high dense ozone generated by dielectric barrier discharges was previously developed [2-5]. Gaseous ozone injection system consisted of 10 electrodes and the treatment container was developed to sterilize a large volume of agricultural soil. The fundamental experiments on biological reaction between the λ -*E.Coli* DNA and ozone exposure suggested that the molecular structure of the DNA collapsed completely using high dense ozone with about 5% concentration.

In the paper comparison of conventional soil treatment methods with plasma aided techniques from the point of view of decontamination potential as well as their impact on soil properties and fertility has been presented.

References

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