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## **RONs detection in plasma activated water**

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Activation of water using pulsed electric discharges serves several important agricultural and biomedical applications. Plasma activated water (PAW) contains reactive oxygen and nitrogen molecular species (RNOS) like hydrogen peroxide  $H_2O_2$ , nitric acid  $HNO_3$ , nitrous acid  $HNO_2$  and peroxynitrite  $ONOO^-$ , exhibiting strong antiseptic power. TU/e spin-off company VitalFluid develops generators for production of PAW, successfully applied for plant growth enhancement via combined plant disease control and nutrition; in the biomedical field, promising results have been obtained with skin disinfection.

Both in PAW synthesis optimization and PAW quality control, knowledge on the actual RONS composition is crucial. Due to its high degree of reactivity, peroxynitrite is regarded as primary marker for PAW activity. However, direct measurement of peroxynitrite is not possible. Based on a theoretical model from literature, accepting hydrogen peroxide, nitrite and acidity data, peroxynitrite levels can be determined. This enables an investigation of the influence of synthesis process parameters on PAW activity. An overview will be presented.

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