
Fungicidal effects of atmospheric pressure plasma on plant pathogens in *Panax ginseng*

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Many studies demonstrated an increase in seed germination and early growth of crops after exposure of the seeds to atmospheric pressure plasma. However, information on the plasma application under biotic stresses is limited and thus its potential in crop production is largely unknown. Fungal plant pathogen is a major biotic stress that adversely affects growth and yield of major crops. This study was conducted to confirm if atmospheric pressure plasma shows fungicidal effects on important pathogens which cause plant diseases leading to poor emergence and seedling growth of *Panax ginseng*. Rhizome of *P. ginseng* and its fungal pathogens were applied with the different concentrations of reactive oxygen and nitrogen species using dielectric barrier discharge in a closed 30-L chamber. Immediately after the treatment, they were transferred to the growth chamber maintained at 25 °C with 9 light and grown up to 15 days after the treatment. Mycelial growth of fungal pathogens were delayed by plasma treatment, with more anti-fungal efficacy at higher concentrations of reactive oxygen/nitrogen species, while plasma treatment caused no visual damage in *P. ginseng*. Further study is on-going to investigate effectiveness of plasma application to a broad range of pathogens under greenhouse condition.

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