

Aqueous ClO₂ Treatment to Pepper Seedling for Increasing Germination Rate and Disease Resistance

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[Introduction]

Aqueous ClO₂ increase germination rate of pepper (Nok-kwang) and the treatment decreased infection rate of Phytophthora blight on petri dish test.

[Materials and Methods]

Pepper seeds were treated various concentration of aqueous chlorine dioxide and germinated in germination box. After 48 h on 28 °C dark incubator, germinated seeds were counted.

Pepper seeds were germinated on sterilized filter paper (90 mm) in petri-dish with 10 ml of sterilized water. After germination, the seeds were treated various concentration of aqueous ClO₂. Five different strains of Phytophthora capsici (KACC 40157, KACC 40473, KACC 40475, KACC 40476 and KACC 40477) were grown in V8 media in petri-dish. After 5 days in 28 °C dark incubator, germinated seeds were plated on edge of P. capsici mycelia. Infected seedlings were counted after 40 hours later.

[Result and Discussion]

Aqueous ClO₂ treated pepper seeds showed that increase germination rate compared with untreated control. Low concentration of aqueous ClO₂ treated pepper germination rate is significantly increased compare with other concentration treatments. In P. capsici infection test, five different strain of P. capsici that have different level of pathogenicity were used. The results suggested that infection rate of high concentration of aqueous ClO₂ treated germination seeds is increased compare with un-treatment control. However, at low and middle concentration treatments were decreased infection rate at some strain. Infection rate of high-level pathogenicity strain treatment is decreased at low and middle concentration of the treatment. However, at low-level pathogenicity strain treatment is barely affected by the treatments. These results suggested that appropriate concentration of aqueous ClO₂ treatment might be lower the pathogenicity by increase disease resistance of pepper.

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