

CONTROL OF POWDERY MILDEW BY SPRAYING THE ELECTROLYZED WATER IN HYDROPONICALLY GROWN STRAWBERRY

Authors: S. Tsukagoshi, Y. Sunohara, Y. Noma, E. Takahashi, A. Schörner

Keywords: *Fragaria x ananassa* Duch., *Sphaerotheca macularis*, chemicals saving, acid water, alkaline water

Abstract:

Effect of spraying electrolyzed acid water and alkaline water obtained by electrolysis of KCl solution on the incidence of powdery mildew (*Sphaerotheca macularis*) is investigated in strawberry (*Fragaria x ananassa* Duch. cv. Nyoho) grown in hydroponics.

Free effective chlorine concentration of the acid water at 0.5m from spraying nozzle ranged between 5.7 and 15.6 mg/l. pH and oxidation-reduction potential of the acid water ranged from 2.2 to 2.3 and from 1100 to 1140 mV, and those of the alkaline water ranged from 12.3 to 12.6 and from 30 to 280 mV, respectively. The treatment plots were 1. No spraying (NSp), 2. Acid water spraying (Ac), 3. Alkaline water spraying 30 minutes after acid water spraying (Ac+Al), and 4. Agricultural chemicals spraying (Chem).

Those electrolyzed waters were sprayed onto the leaves and petioles once every week, and chemicals were sprayed once every two or three weeks. The occurrence of powdery mildew on the petioles was observed on January 5 in NSp, and on January 12 in Chem. The number of diseased petioles increased in NSp as the experimental period proceeded, but decreased in Chem and no diseased petiole was observed on February 16. In Ac or Ac+Al plot, the numbers of diseased petioles were lower than that in NSp or Chem plot. Very few disease symptoms were observed in Ac or Ac+Al.

The results indicate that the acid water spraying and acid + alkaline water spraying can control the powdery mildew in strawberry and can reduce the use of chemical fungicide in protected cultivation.