



Foliar potassium nitrate application effectively suppressed and controlled powdery mildew development on cucumber plants

The effect of foliar sprays with aqueous solutions containing various phosphates and potassium salts to control powdery mildew, caused by

Sphaerotheca fuliginea

, was studied. Cucumber plants (

Cucumis sativus

cv. Delilla) were grown in a greenhouse in plastic pots containing a mixture of peat, vermiculite and soil (1:1:1, v/v). Twice per week, plants were watered to saturation with a 0,1% 20-20-20 (N-P-K) fertilizer solution. The plants were inoculated with a powdery mildew conidial suspension and number of colonies was counted (8-12 days later) before treatment applications. The upper surface of each leaf was sprayed with 1-2 ml of aqueous solutions (25 mM) of KNO_3 , K_2HPO_4 , KH_2PO_4 , $\text{KH}_2\text{PO}_4 + \text{KOH}$ or KCl .

The data presented in Figure 1 clearly demonstrate a high fungicidal activity of phosphate and potassium salt solutions up to 12 days after application. Efficiency of control, as expressed by the disappearance of 99% of pustules, was recorded 1 or 2 days after application of single sprays of the salts (Figure 1). Treatments also markedly reduced (> 99%) the production of conidia from colonies. A further application of these salts to the same plants resulted in the elimination of about 50% of mildew colonies present prior to the application. Further spray application inhibited disease development compared with water-sprayed plants, but did not reduce the number of existing lesions. This study demonstrated that phosphate and potassium salts effectively suppressed and controlled powdery mildew development on cucumber plants.

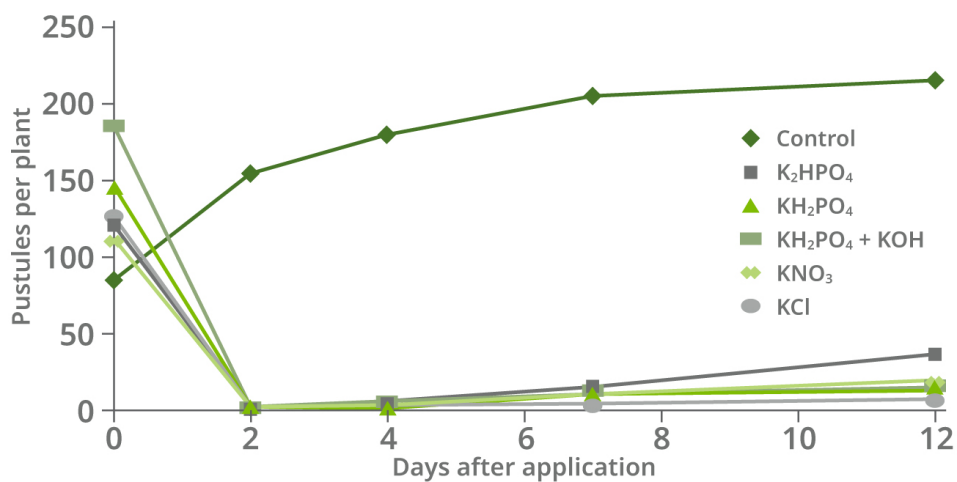
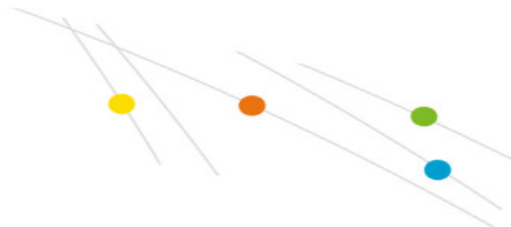


Figure 1. Effect of single foliar sprays with 1-2 ml of aqueous salt solutions (25 mM) on suppression of powdery mildew pustules on cucumber plants. The number of pustules on each leaf was counted before application (day 0) and at various days after application.