

**EFFECT OF SILICON ON ANTHRACNOSE DISEASE  
IN HYDROPONICALLY GROWN  
*CAPSICUM ANNUUM* L. CV. AWLEGAMA**

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Anthracnose is one of the major fungal diseases of *Capsicum annuum* L. causing 21-47% reduction of marketable yield. The control of disease is currently achieved by application of contact and systemic fungicides, which is costly and environmentally hazardous. Silicon (Si) application is reported for significant reduction of anthracnose disease in sorghum, cucumber, Chinese cabbage, beans and tomato through induction of natural disease resistance mechanisms in plants. Hence, this research was focused on developing natural disease resistance against anthracnose in *Capsicum annuum* L. cv. Awlegama by application of potassium silicate ( $K_2Si_2O_5$ ) as the silicon source in the growing medium.

Healthy, six weeks old capsicum cv. Awlegama plants were transferred to non-circulating hydroponic system and nutrients were supplied by two formulae during the growth and bloom and fruiting stages of the plant. Four treatments were used with different Si concentrations: 0 mg/l (control), 50 mg/l, 75 mg/l and 100 mg/l each with three replicates and each replicate consisted four plants. Anthracnose disease development on mature harvested fruits was assessed by artificial inoculation with *Colletotrichum gloeosporioides* conidia and measuring the lesion area for 10 consecutive days. Data were analyzed using one way ANOVA in Minitab 14 statistical software.

A significant reduction of lesion areas 42%, 76% and 75% were observed in fruits obtained from the treatments; 50 mg/l, 75 mg/l and 100 mg/l of Si compared to control, respectively on 10<sup>th</sup> day after inoculation. The disease development was reduced by over 75% in fruits from 75 and 100 mg/l Si-treated plants. Disease symptoms initiated in fruits from 75 mg/l and 100 mg/l silicon treatments at 7 days after inoculation whereas it took only 4 and 5 days in the fruits from 0 mg/l (control) and 50 mg/l treatments, respectively. These results indicate that the anthracnose disease caused by *C. gloeosporioides* in *Capsicum annuum* L. cv. Awlegama could be significantly reduced (75%) by application of either 75 mg/l or 100 mg/l of silicon with delayed initiation of disease.

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