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Abssisic acid (ABA) facilitates the pathogenicity of *Colletotrichum acutatum* on pepper fruits

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Objectives

We have tried to elucidate the effect of ABA on the development of pepper anthracnose caused by *Colletotrichum acutatum*.

Materials and Methods

1. Material

Plant - Peppe (var. Nokkwang), Pathogen *Colletotrichum acutatum* JC24

Reagent - ABA

2. Methods:

Colletotrichum acutatum JC24 causing pepper anthracnose was inoculated onto wounds of pepper. Conidial suspension adjusted to 1×10^6 conidia/ml was dropped on them. ABA was applied on wound before inoculation or at that time of inoculation. Peppers inoculated with *C. acutatum* JC24 were kept into the humidity chamber for 7 days. Disease severity was investigated by measuring the lesion length.

Results and Discussion

It was performed the effect of plant hormones on the development of pepper anthracnose. When lesion size was measured 2 weeks after inoculation with the conidial suspension of *Colletotrichum acutatum* JC24 with ABA solution adjusted to the indicated concentrations, it was confirmed that the disease severity of anthracnose pathogen on pepper fruits was dependant with the concentration of ABA among the selected plant hormones such as IBA, BA, GA, ABA, ethephone. The tank mixture inoculation of the conidia of *C. acutatum* JC24 and the ABA solution caused the anthracnose more severely than the inoculation of conidia only. The pathogenicity of *C. acutatum* JC24 on fruits and leaves of pepper was the highest, when being mixed with 2 mM of ABA among all the tested concentrations of ABA. At 2 mM, ABA induced no phytotoxicity on pepper fruits and leaves. The application of ABA also caused the increase of pathogenicity in the resistant line such as PBC80 and PBC81 of pepper to anthracnose pathogen. Through the tank mixture inoculation of the conidia of *C. acutatum* JC24 and the ABA solution, disease incidence was increased in PBC80 and PBC81 by 50 and 85%, respectively. Although *C. acutatum* isolated from Chinese matrimony vine and peach did not the pathogenicity on pepper plants, the tank mixture inoculation of the each conidia of them and the ABA solution showed the severe pathogenicity. Based on these results, it was supposed that ABA play an important role on the pathogenicity of *C. acutatum* on pepper fruits.

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