



# Induction of resistance in Safflower plant against root rot and wilt diseases by ascorbic acid and thiamine

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## Abstract:

Abstract: The ability of thiamine (vitamin B1) and ascorbic acid to induce resistance against root rot and wilt disease in safflower cultivar infected with *Fusarium verticillioides* was studied under laboratory and greenhouse conditions. Infection with *Fusarium* sp. caused clear reduction in growth parameters (fresh and dry weight of plants, total photosynthetic pigments), soluble sugars and free amino acids comparing with healthy plants (absolute control). In addition it induced the highest accumulation of proline. On the other side, soaking with two levels of thiamine and ascorbic acid lowered the numbers of infected safflower plants, increased dry and fresh weight contents specially in shoots than roots comparing with the infected plants with *Fusarium verticillioides*. Thiamine concentrations (1,&3mM) induced the highest stimulating effect on total pigments. The induction of resistance by ascorbic acid and thiamine was associated with some biochemical changes in safflower cultivar by reduction of proline content, enhancement of soluble sugars and free amino acids to decrease the disease and increase plant growth.

## Keywords:

Keys words:Safflower, thiamine, ascorbic, root rot-wilt diseases, dry weight, total photosynthetic pigments, soluble sugars, Free amino acids , proline

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