

EFFECT OF NITRATE LEVELS AS A FERTILIZER OR AS A FUNGAL NUTRITION ON THE AGGRESSIVENESS OF *RHIZOCTONIA SOLANI* ON FABA BEAN

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ABSTRACT

The effect of sodium nitrate level as a fertilizer on aggressiveness of the fungus *Rhizoctonia solani* on faba bean plants was studied either in pots experiment or *in vitro*. Plants grown in infested soil amended with different levels of sodium nitrate showed that under zero amended nitrate or under high level of nitrate disease severity was very severe which reflected on decreasing the number of emerging plants, weight of foliage system, root weight, plant height and number of plant leaves. The levels of nitrate in between showed decreasing of disease severity. *In vitro* studies was carried out by putting peeled germinated seeds on *R. solani* fungal growth growing on Czapek's Dox agar medium supplemented with different levels of sodium nitrate. The fungus becomes more virulent when grown on media with increasingly higher concentration of nitrate. This was evident when disease was determined either visually or by determination of Polyphenol oxidase (PPO) activity of infected germinated seeds. Transverse cross sections of faba bean radicals subjected to the fungus showed that increasing nitrate level raised the number and intensity of the developed infection cushions. The obtained results clearly monitor that higher level of nitrate in growth medium clearly enhanced the aggressiveness of the fungus which resulted in severe damage of the outer cortical layers of faba bean radical just after 16 h. from subjecting the host to the pathogen.

Keywords: light microscope, polyphenol oxidase (PPO), pots experiment, root rot. *Vicia faba L.*