Study of the antagonistic effect of ***Trichoderma spp***. against ***Fusarium spp.*** Involved IN Fusarium head blight and root rot of wheat.

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Five isolates belonging to the species: T.atroviride (Ta.7, Ta.13), T.Harzianum (Th.6, Th.15) and T.longibrachiatum (TL.9) were tested against four Fusarium species (F.Culmorum, F.Avenaceum, F.Moniliforome and F.solani).

Tests were carried out using in vitro and in vivo based bioassay Evaluation of antagonistic activity in vitro was performed using two techniques: direct and indirect confrontation.

In the case of direct confrontation, a net reduction of the pathogen growth was observed with variability in the sensitivity of ***Fusarium spp*** towards ***Trichoderma*** species tested.

Their effectiveness was evaluated by the percentage of the pathogen colony growth reduction which varied from 4% to 92%.
The highest percentage growth reduction of all ***Fusarium*** species was obtained with the isolat TL.9 ***T.longibrachiatum*** where a percentage of 92% was obtained with ***F.Solani***.

Once more, in direct confrontation pathogens isolates colonies were invaded by ***Trichoderma*** with a variability of this behavior which varied from total recovery, partial or no recovery by the antagonist.

In the case of ***Fusarium*** species, total or partiel recovery with the species ***T.atroviride*** and ***T.longibrachiatum*** and no recovery with the species***T.Harzianum*** were observed.

In indirect confrontation (no direct contact) between the pathogen and the antagonist, where inhibition occurs only as a result of volatile antifungal substances produced by the antagonist, significant reductions on the pathogen growth compared to the control were obtained percentage of reduction varied between 4 and 81% and the highest percentages within ***Fusarium*** species ***(F.avenaceum, F.culmorum and F.solani)*** were obtained with TL.9 ***T.longibrachiatum*** but for F.solani the highest percentage was obtained with Th.15 ***T.Harzianum***

by in vivo bioassay, ***T.atroviride*** isolates which has been proved to be most effective in vitro test was assessed against the species ***F.Culmorum*** by seed treatment before sowing wheat in soil infested with ***F.Culmorum*** as result, a percentage of inhibition of disease severity of 90% was obtained with Ta.13 ***T.atroviride*** and 52% with Ta.7 ***T.atroviride*** showing the effectiveness of this species in wheat protection against Root rot and Grown rot.

In this study it was also shown the production of antifungal volatile 6pp (6-pentyl – α – pyrone) By Ta.13 and that this isolate is a major producer of 6 pp.

Seeds were treated with isolate Th.15 T.Harzianum show a highest resistance for disease

Key words: ***Fusarium spp***. Direct confrontation, indirect confrontation, 6pp,***Trichoderma spp***, biological control.

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