

## Determination of Sensitivity of *Trichoderma* Species Against Some Fungicides

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**Aim of the study:** *Trichoderma* is known as the most widely used antagonist in biological control and has almost all the land and natural habitats in nature especially in areas containing organic substance. Suppression of pathogenic fungal agents in plants may not be possible using antagonists alone. Therefore, antagonists should be applied in combination with fungicides against soil-borne pathogens. In this application form, fungicides are expected to be less effective against antagonists such as *Trichoderma*. Aim of this study was to determine the sensitivity of *Trichoderma* species against some fungicides which used to soil pathogen: *Rhizoctonia solani*.

**Material and Methods:** *Trichoderma* species (*T. asperellum* TZ17, *T. asperellum* TZ20, *T. atroviride* BOZ6, *T. crassum* VG66, *T. croceum* BOZ26, *T. gamsii* VG47, *T. hamatum* ÖT16, *T. harzianum* LO52, *T. harzianum* TZ14, *T. inhamatum* PT12, *T. neokoningii* A15, *T. spirale* KB51, *T. strigosum* LO43, *T. virens* KB51) and some fungicides [Rizolex-T® (Tolclofos methyl+Thiram, 20+30 %), Celest-max® (Fludioxonil, 100g/l), Rizolex® (Tolclofos methyl, 50 %)] had been tested in this study. Different concentrations of fungicide (0, 10, 30 and 100 ppm) was added separately to 100 ml of sterilized PDA medium immediately after cooling before solidification under aseptic condition and mixed thoroughly to give the required concentrations. The control was maintained without fungicide. Prepared medium was aseptically poured in sterilized Petri dishes, four replicates were used for each treatment. Equal disks (8 mm diameter) from *Trichoderma* species 7 days old culture were placed onto the middle of the agar plate. Inoculated plates were incubated at 22-25°C and mycelial growth was measured daily. Sensitivities of isolates to fungicides were calculated according to Abbott's formula.

**Results:** Pesticides had an effect at different rates in all doses on antagonists. As the doses of the pesticides increased, the rate of colony development decreased accordingly. According to the results of the study, *T. spirale* KB51, *T. croceum* BOZ26, *T. crassum* VG66 were found to be the least susceptible antagonists whereas *T. asperellum* TZ17 showed the highest sensitivity with different doses of the three fungicides. On the other hand, while *T. gamsii* VG47 affected by Rizolex and Rizolex-T, *T. strigosum* LO43 also affected by Rizolex-T and Celest-max pesticides. Generally, antagonists have shown similar reactions in terms of susceptibility to different doses of the three fungicides, which are considered as a general behavior towards the chemical pesticides. According to another result obtained in the study, some antagonists such as *T. spirale* KB51, *T. croceum* BOZ26, *T. crassum* VG66 generated less conidia than other *Trichoderma* and were found to be the least susceptible to fungicides.

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