

<b>Title</b>	Identification of Gray Mold Disease ( <i>Botrytis Cinerea</i> ) Isolates From Greenhouse Peppers to Fungicides Resistance and Genetic Differences By Using Molecular Markers, Determination of The Reactions of Some Breeding Materials in BATEM Gene Pool Against Pathogen
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**Abstract:** Turkey ranks third at the list on production of pepper in the world. Antalya is the province where the most pepper production was done by 236,552 tons, covering 59.7% of the total greenhouse production in our country. Gray mold disease caused by (*Botrytis cinerea* (teleomorph: *Botryotinia fuckeliana*) a polyphagous fungal pathogen infecting many plants, which is capable of forming colonies that is one of the most important diseases limiting pepper cultivation in greenhouses. Many fungicides are used to control of *B. cinerea*, nowadays however; it is getting very difficult since it becomes resistance to fungicides. A number of physical and chemical applications can result in mutation on the pathogen. To know the pathogen well is of importance in view of efficiency and safety of pest management.

In this study, virulence degree of the pathogen, differences in the level based on gene-protein of the pathogen, molecular markers, genetic differences between isolates of a major problem *B.cinerea* in pepper greenhouses and their reactions with breeding materials of gen pool in Bati Akdeniz Agricultural Research Institute (BATEM) were detected. One the most important goal of this project is participation to COST actions. For this purpose, the surveys were conducted in fields where greenhouse cultivation is intensively done (Kumluca, Demre, Serik, Kaş, Aksu, Kepez, Finike, Alanya). Morphological and molecular (ITS1-ITS4 primers) identification of collected isolates and degrees of virulence were determined in-vitro and gene (Bos1 and  $\beta$ -tubulin) analysis in order to evaluate whether any resistance is developed to fungicides. Molecular markers SSR, ISSR and SRAP primers showing high polymorphism within pathogen isolates were selected to assess genetic diversity within isolates. Reaction levels of 5 breeding materials for each charliston, capia, bell and banana pepper types of

As a result; collected isolates showed different virulence and genetic diversity. Some isoaltes showed higher virulence than reference isolates. Moreover some isolates displayed resistance to fungicides. Breeding materials in gene pool of BATEM showed differentiation in reaction levels to pathogen isolates.