Abstract

Cultivation of canola has recently been increased in Iran for extraction of raw oil. Pests and diseases are the most important limiting factors that reduce yield. One of the most important constraints to canola production in Iran, is canola blackleg. Asexual form of disease agent is *Phoma lingam*. Biological control is the best method to control the disease. In this investigation firstly, healthy and contaminated canola were collected from Joojbar, Dezful and Qazvin. The bacterial isolates including: P1, BE3, N4, BC6, BC8, P10, P16, B24, B31, and fungal isolates: Tr.2901 and Tr.2910 were separated in laboratory from the soil collected canola rhizospher. Secondly antagonistic effects of bacterial and fungal isolates were investigated on *P. lingam* by dual culture in laboratory. The bacterial isolates including: BE3, B31, B66, B67, B68, B69, B70 and the fungal isolates: Tr.2901 and Tr.2910, were selected for greenhouse experiments. In greenhouse condition inhibitory effects of these isolates on canola blackleg were evaluated by two methods: seed treatment with antagonists and spraying aerial organs of canola by suspension of antagonists agents. Isolates: B67, Tr.2901 and B70 caused 80, 56.7 and 36.7 percent reduction of blackleg, respectively in seed treatment and Tr.2901 and Tr.2910 isolates in aerial organs treatment, cuased 60 and 43.3 percent reduction in the disease, respectively. Bacterial isolates: B67 and B70 belong to *Bacillus subtilis* and fungal isolates Tr.2901 and Tr.2910 belong to *Trichoderma koningii*. In order to compare the effect of applying poison with biocontrol agents, Carboxin thiram (2.5 per 1000) also in greenhouse exprements which in aerial organs treatment with 76.7 percent disease control was effectivness treatment.

Keywords: biological control, *Phoma lingam*, canola blackleg, antagonist

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