

Screening of lactic acid bacteria as biological control against chilli seeds pathogen ( *Colletotrichum gloeosporioides* )

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**Abstract**

Chilli, *Capsicum annum* L. cultivation has existed for several hundred years as a sustainable form of agriculture in Malaysia and in many other countries. It is an annual herbaceous vegetable and spice grown in both tropical and sub-tropical regions and belongs to family Solanaceae. The sustainability of chilli-based agriculture is threatened by a number of factors. Main biotic stresses such as bacterial wilt, anthracnose, viruses and several insect pests have been reported to impair the crop productivity. The fungal disease is both seed and air borne and affects seed germination and plant vigour to a greater extent. Biological control by antagonistic microorganisms is widely recognized as a promising method for control plant diseases. This study reports the effectiveness of using lactic acid bacteria (LAB) cultures or their supernatant as a biological control against anthracnose disease in chilli caused by fungus *Colletotrichum gloeosporioides*. From 30 lactic acid bacteria isolated from different sources, seven isolates showed good inhibition activity against *C. gloeosporioides* by dual overlay method. The supernatant from LAB-CS showed strong inhibition to fungal growth evaluated using microtiter plates. Seeds infected with *C. gloeosporioides* followed by treatment with LAB-CS cells showed better seed germination rate than seed treated with supernatant. Fungi infected seeds were germinated but fail to grow. The results indicate that LAB-CS has potential to be used as biological control against *C. gloeosporioides* to replace the use of chemical fungicide to chilli seeds.

**Keywords:** Chilli anthracnose; *Colletotrichum gloeosporioides*, Lactic acid bacteria; Infected seeds; Germination percentage.