

Anti-fungal activities of selected tropical plants from Bali Island

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Abstract

Methanolic extracts of 14 tropical plants belong to different families inhabiting in Bali Island, Indonesia were tested for their antifungal activities against *Fusarium oxysporum* f.sp. *capsici* the cause of Fusarium wilt disease in paprika pepper. All tested plants showed obvious antifungal activity against four isolates of *Fusarium oxysporum* f.sp. *capsici*, namely isolates LS05, LS14 (isolated from paprika plants grown in the plastic house in Lombok Island), BS01 and BS07 (isolated from paprika plant grown under open field condition in Bali Island Indonesia). Five plant species namely *Albizia saman* F.Muell, *Piper betle* L., *Syzygium aromaticum* (L.) Merrill & Perry, *Sphaeranthus indicus* L. and *Alpinia galangal* L. exhibited strong antifungal activities. The minimum inhibitory concentration (MIC) of the tested plants varied from 2 mg/ml to 13 mg/ml, however, the extract of *Albizia saman* showed the lowest MIC (2 mg/ml) against all tested isolates.

Keywords: tropical plants; antifungal activity; *Fusarium* wilt disease

Introduction

Paprika pepper (*Capsicum annuum* L.) is important vegetable crops for Indonesia since it contains good nutritive value such as protein, fat, carbohydrates, minerals and vitamins (Cahyono, 2003; Pijoto, 2003). Market demand for this vegetable is tend to increase year by year, both for domestic consumption and export particularly to United State of America, Germany, Sweden, French, Switzerland, Spain, Italy, Belgium, Japan, Singapore and Malaysia (Cahyono, 2003). The main problem for paprika production is the *Fusarium* wilt disease caused by pathogenic fungus, *Fusarium oxysporum* f.sp. *capsici* (Prajnanta, 1998). The disease may occur in the plants of various development stages. The symptom of the disease appears as dwarf of stalk and the plants continue to be wilt and finally die. The disease incidences vary from 15% to 40% and on some cases may cause the total yield losses.

Synthetic fungicide that contains copper and sulfur is commonly applied to control the disease; however, the use of this synthetic fungicide could not control the disease approp-