

## Eusiderin I from *Eusideroxylon zwageri* as Antifungal agent against Plant Pathogenic Fungus

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**Abstract :** The objective of the study was to investigate antifungal activity of Eusiderin I from *Eusideroxylon zwageri* by determining the inhibition zone of Eusiderin I against some pathogenic plant fungus. The antifungal activity were determined in a series of Eusiderin I concentration using agar well diffusion method. The antifungal activities of Eusiderin I (at 3, 4 and 5 ppm concentration) from *E. Zwageri* were tested against four plant pathogenic fungals such as *Fusarium oxysporum* f.sp. *lycopersici*, *Sclerotium roefsii*, *Rhizoctonia solani* and *Gliocladium fimbriatum*. Inhibition zone were compared with that of chloroform's as solvent. The results showed that the remarkable inhibition on the fungal growth was shown against the tested organisms. Eusiderin I, as major component of *E. zwageri* showed potent antifungal activity against *Fusarium oxysporum* f.sp. *lycopersici*, *Sclerotium roefsii* and *Rhizoctonia solani*. At 5 ppm concentration, it gave the most effective inhibition (49.80%) against the colony growth of *Fusarium oxysporum* f.sp. *lycopersici*. Whilst inhibitory activity against the growth of *Gliocladium fimbriatum* colony was not found. The result was in line with *Gliocladium fimbriatum*'s nature as antagonist agent against various pathogenic plants and it is very well known as a biological control.

**Keywords:** Eusideroxylon zwageri, antifungal activity, Eusiderin I, *Fusarium oxysporum* f.sp. *lycopersici*, *Sclerotium roefsii*, *Rhizoctonia solani*, *Gliocladium fimbriatum*.

### Introduction

Bulian or iron wood (*Eusideroxylon zwageri*) is one of the timber forest with high economic value. *E. zwageri* is an endemic plant in which widely distributed throughout Jambi Province, Indonesia. It is a dense red-brownish durable wood, proofed to termite ubiquitous tropical wood-decayed insects and fungi<sup>1,2,3,4</sup>. As a consequence, the wood is widely used for construction materials such as bridge, boat, window frame, etc. It is particularly prominent resistance towards wood decayed fungi that put the wood as first class timber. Eusiderin I is a neolignan which isolated as major component from *E. zwageri*. It is found in leaf, stem, bark and root of this plant. Formation of secondary metabolites in plants related to ecological functions as the embodiment of