Induksi Resistensi terhadap Asam Fusarat pada Tunas Pisang Tanduk *In Vitro* Menggunakan Asam Salisilat dan Mikroba Endofitik

Induced Resistance to Fusaric Acid on Banana Shoots "Tanduk" In VitroUsing Salicylic Acid and Endophytic Bacteria

Oleh : Dewi Sukma
Departemen Agronomi dan Hortikultura, Faperta IPB

ABSTRACT

Fusarium wilt is important disease in bananas production. There are not yet commercial cultivar of bananas that really resistant to this disease. Induced resistance is an alternative way to get banana resistance to fusarium wilt. Induce resistance may be done in *in vitro* shoots culture of bananas chemically or biologically, then the shoots are treated with the toxin of *Fusarium oxysporum* namely fusaric acid to have a look of resistance response. Some chemical compounds are potential to induce disease resistance in plants like salicylic acid. Endophytic bacteria also can induced disease resistance in plants.

The research was done to evaluate the response of *in vitro* banana shoots "Tanduk" to fusaric acid treatment and effects of salicylic acid and endophytic bacteria on fusaric acid resistance of banana shoots *in vitro*.There are two experiment in this research. The first one is the response of banana shoots to four level of fusaric acid and the second one is the response of banana shoot to fusaric acid after prior treatment with salicylic acid and endophytic bacteria.

The results of the first experiment show that almost 50% of shoots tissues was died at 39.6 mg/l of fusaric acid and 90 -100% at 78.43 mg/l and 116.50 mg/l of fusaric acid. The LD_{50} is at 46.74 mg/l fusaric acid. Sub lethal dose is at 93.23 mg/l of fusaric acid. Toxic symptom in the shoots was showed by and blackening of the shoots.

The second experiment showed the prior treatments with salicylic acid or *B. substilis* ERB21 do not yet induce the resistance of banana shoots "Tanduk" to fusaric acid *in vitro*.

Keyword : induce resistance, fusaric acid, salicylic acid, endophytic bacteria, *in vitro* shoots culture "Tanduk",

ABSTRAK

Penyakit layu fusarium merupakan masalah penting dalam produksi pisang . Sampai saat ini belum ada kultivar pisang komersial yang benar-benar tahan terhadap layu fusarium. Induksi resistensi merupakan salah satu cara untuk mendapatkan tanaman pisang yang tahan terhadap layu fusarium. Induksi tersebut kemungkinan dapat dilakukan secara *in vitro* dengan cara kimia atau biologi lalu kultur *in vitro* diperlakukan dengan toksin yang dihasilkan *Fusarium oxysporum* yang disebut asam fusarat untuk melihat respon ketahanan kultur tersebut. Beberapa senyawa kimia berpotensi untk menginduksi ketahanan tanaman terhadap penyakit seperti asam salisilat. Mikroba endofitik juga dapat menginduksi ketahanan terhadap penyakit pada tanaman.

Penelitian in dilakukan untuk melihat respon tunas pisang "Tanduk" *in vitro* terhadap perlakuan asam fusarat (0, 39.6, 78.43, or 116.50 mg/l) dan pengaruh perlakuan asam