

ABSTRAK

SYAMSIA. Pemanfaatan Isolat Cendawan Endofit untuk Meningkatkan Ketahanan Padi Aromatik Lokal Enrekang terhadap Penyakit Hawar Daun Bakteri (*Xanthomonas oryzae pv oryzae*) dan Cekaman Kekeringan. Dibimbing oleh Tutik Kuswinanti (Promotor), Elkawakib Syam'un dan A.Masniawati (Ko-promotor).

Penelitian ini bertujuan untuk : (1) Menguji ketahanan jenis padi aromatik lokal Enrekang terhadap penyakit hawar daun bakteri (HDB); (2) Menguji ketahanan jenis padi aromatik lokal Enrekang terhadap cekaman Kekeringan; (3) Menguji kemampuan isolat cendawan endofit sebagai antagonis terhadap bakteri *Xoo* secara *in vitro* ; (4) Menguji kemampuan isolat cendawan endofit dalam memproduksi hormon IAA, pelarutan fosfat dan produksi enzim; (5) Menguji kemampuan isolat endofit dalam meningkatkan ketahanan tanaman terhadap penyakit hawar daun bakteri (HDB); (6) Menguji kemampuan isolat endofit dalam meningkatkan ketahanan tanaman terhadap cekaman kekeringan.

Penelitian dilaksanakan dalam tiga tahapan yaitu: 1) Uji ketahanan padi aromatik lokal Enrekang terhadap penyakit hawar daun bakteri dan cekaman kekeringan; 2) Isolasi, uji kemampuan isolat cendawan endofit dalam memproduksi hormon IAA, pelarut fosfat, dan produksi enzim dan identifikasi; 3) Uji kemampuan isolat cendawan endofit dalam meningkatkan ketahanan tanaman padi terhadap penyakit hawar daun bakteri dan cekaman kekeringan.

Hasil penelitian menunjukkan bahwa: 1) Padi aromatik lokal Enrekang Pare Mansur, Pulu Lotong, Pulu Mandoti Pare Lambau dan Pare Pinjan bersifat rentan terhadap penyakit hawar daun bakteri; 2) Padi aromatik lokal Enrekang Pulu Mandoti, Pare Lambau, Pare Pinjan, Pare Lea, Pare Solo dan Pare Kamida yang memiliki sifat toleran terhadap cekaman kekeringan; 3) Isolat cendawan endofit yang bersifat antagonis terhadap Bakteri *Xoo* yaitu *Penicillium* sp, *Aspergillus*, sp dan *Aspergillus niger*; 4) *Aspergillus*, sp dan *Aspergillus niger* dapat meningkatkan ketahanan padi aromatik lokal Enrekang terhadap penyakit hawar daun bakteri; 5) *Aspergillus niger* mampu meningkatkan ketahanan Pulu Mandoti dan Pare Pinjan dari level rentan menjadi tahan terhadap penyakit hawar daun bakteri; 6) *Penicellium* sp memiliki kemampuan dalam meningkatkan ketahanan tanaman terhadap cekaman kekeringan.

Kata Kunci : *cendawan endofit, penyakit hawar daun bakteri, padi aromatik lokal, cekaman kekeringan*

ABSTRACT

SYAMSIA. Utilization Of Endophytic Fungal Isolates for Enhancing the Resistance of Local Aromatic Rice from Enrekang against bacterial leaf blight (*Xanthomonas oryzae pv oryzae*) and Drought Stress. Supervised by Tutik Kuswinanti (Promotor), Elkawakib Syam'un and A.Masniawati (Co-Promotor)

The objective of the research were to: (1) Testing the resistance level of local aromatic rice varieties from Enrekang against bacterial leaf blight (BLB); (2) Test the Resistance of local aromatic rice varieties Enrekang against Drought stress; (3) Test the ability of endophytic fungal isolates as antagonist of *Xanthomonas oryzae pv. oryzae in vitro*; (4) Testing the ability to isolate endophytic fungi in producing of IAA hormone, dissolving of phosphate and enzyme production; (5) Testing the endophytic isolates ability to improve plant resistance to bacterial leaf blight (BLB); (6) Test the ability of endophytic fungal isolates in increasing the resistance of local aromatic rice plants toward drought stress.

The research was divided in three stages as follows: 1) Resistance test of local aromatic rice from Enrekang against bacterial leaf blight disease and drought stress; 2) Isolation, testing of endophytic fungal isolates capability in producing IAA hormone, phosphate solubility, the production of enzymes, and identification; 3) Test the ability of endophytic fungal isolates in increasing plant resistance to bacterial leaf blight disease and drought stress.

The result indicated that (1) the local aromatic rice Pare Mansur, Pulu lotong, Pulu Mandoti, Pare Pare Pinjan and Pare Lambau are susceptible toward bacterial leaf blight disease; 2) local aromatic rice Pulu Mandoti, Pare Lambau, Pare Pinjan, Pare Lea, Pare Solo and Pare Kamida are tolerance to drought stress; 3) Endophytic fungal isolates that could inhibit the growth of Xoo bacteria namely *Penicillium* sp, *Aspergillus* sp and *Aspergillus niger*; 4) *Aspergillus* sp and *Aspergillus niger* could increase the resistance of local aromatic rice against bacterial leaf blight; 5) *Aspergillus niger* is able to increase the resistance level of Pulu Mandoti and Pare Pinjan from susceptible level to become resistant against bacterial leaf blight; 6) *Penicillium* sp has the ability to increase the resistance of rice plants to drought stress.

Keywords: endophytic fungi, bacterial leaf blight, local aromatic rice, drought stress