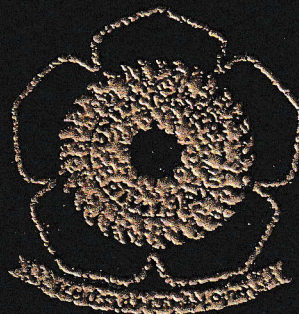


TESIS

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FUNGAL DURING MAIN RICE AND RATOONED RICE



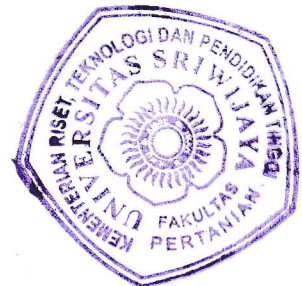
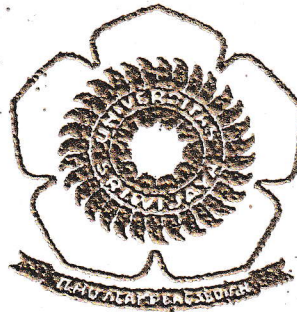
GHANNI PRADAWATI
05812681721008

PROGRAM STUDI MAGISTER ILMU TANAMAN
FAKULTAS PERTANIAN
UNIVERSITAS SRIWIJAYA
2020

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LEMBAR PENGESAHAN

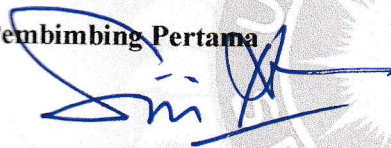
**POPULASI SERANGGA HAMA DAN KELIMPAHAN
ARTROPODA PREDATORNYA DI SAWAH YANG
DIAPLIKASIKAN BIOINSEKTISIDA JAMUR
ENTOMOPATOGEN SELAMA MUSIM PADI UTAMA DAN
RATUN**

TESIS

**Sebagai salah satu syarat untuk memperoleh gelar magister sains
(M.Si.)**

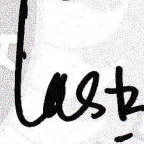
Palembang, November 2019

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**Mengetahui,
Dekan Fakultas Pertanian**

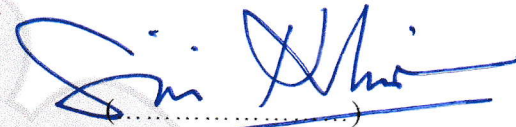


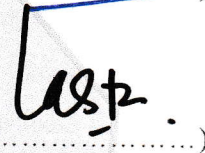

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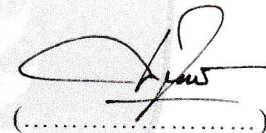
Tesis dengan judul "Populasi Serangga Hama dan Kelimpahan Artropoda Predatornya di Sawah yang Diaplikasikan Bioinsektisida Jamur Entomopatogen Selama Musim Padi Utama dan Ratus" oleh Ghanni Prabawati telah dipertahankan di hadapan Komisi Penguji Tesis Program Studi Ilmu Tanaman Pascasarjana Fakultas Pertanian Universitas Sriwijaya pada tanggal 20 November 2019 dan telah diperbaiki sesuai saran dan masukan dari tim penguji.

Komisi Penguji

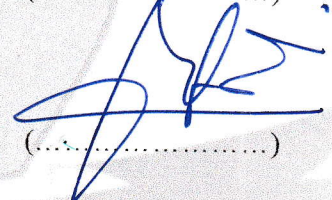
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Mengetahui,
Ketua Program Studi
Ilmu Tanaman


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PERNYATAAN INTEGRITAS

Yang bertanda tangan di bawah ini :

Nama : Ghanni Prabawati

NIM : 05012681721008

Judul : Populasi Serangga Hama dan Kelimpahan Artropoda Predatornya di Sawah yang Diaplikasikan Bioinsektisida Jamur Entomopatogen Selama Musim Padi Utama dan Ratusun

Menyatakan bahwa semua data dan informasi yang dimuat di dalam tesis ini merupakan hasil penelitian saya sendiri di bawah supervisi pembimbing, kecuali yang disebutkan dengan jelas narasumbernya. Apabila di kemudian hari ditemukan adanya unsur plagiasi dalam tesis ini, maka saya bersedia menerima sanksi akademik dari Universitas Sriwijaya.

Demikian pernyataan ini saya buat dalam keadaan sadar dan tidak mendapat paksaan dari pihak manapun.



Palembang, Januari 2020


Ghanni Prabawati
05012681721008

SUMMARY

GHANNI PRABAWATI. Population of Pest Insect and Abundance of Predator Arthropods in Rice Fields Applied with Bioinsecticides of Entomopathogenic Fungal During Main Rice And Ratooned Rice (Supervised by **SITI HERLINDA dan YULIA PUJIASTUTI**).

Arthropods have a important role to reach an balanced agroecosystem in the rice fields. The existence of herbivore insects in freshwater swamp was potentially to reduce rice production. sprayed synthetic insecticides can decrease the existence of natural enemies of herbivore insects (predators and parasitoids). In an effort to preserve the environmental ecosystem and maintain lokal wisdom, it is necessary to implement environmentally friendly biological control techniques. Application of bioinsecticides could be used as an alternative in controlling population of herbivore insect. This study aimed to determine the species of fungal that affect herbivore insects population and arthropods abundance in main rice and ratooned rice, determined entomopathogenic fungal species that caused high insect populations and diversity, found species of entomopathogenic fungal that can increase production of main rice and ratooned rice.

The field experiment has been carried out in the Pelabuhan Dalam Village of Pemulutan Subdistrict of Ogan Ilir District, South Sumatra Province, Indonesia. The experiments began from March to September 2018 for the main rice and rationed rice was began from September to November 2018. Sampling of the arboreal arthropods used a sweep net and pitfall traps was used to collect arthropods inhabiting the surface area of rice field. This study used bioinsecticides from fungal of *Beauveria bassiana*, *Metarhizium anisopliae*, and *Cordyceps militaris* and control using abamectin.

The results of research showed the abundance and diversity of species canopy arthropod on freshwater swamp which were applied bioinsecticides from *Beauveria bassiana*, *Metarhizium anisopliae*, and *Cordyceps militaris* and insecticides during the season of main rice were found 68 species of arthropods consists of 22 herbivore insect species, 32 spiders species, and 14 predatory insect

species. The arthropod species found were spread in 12 family of herbivores insects, 8 spiders family, 8 predators insect family. The abundance of arthropods in the main rice tends to be higher than in the ratooned rice. Bioinsecticide did not reduce the abundance of predator arthropods but abamectin caused a decrease in abundance in all guilds. The most significant decrease was found by web-building spiders. Meanwhile, the movement of hunting spiders and the predatory insects of the main to ratoon rice was faster than that of web-building spiders. The existence of ratooned rice could become habitats and niches for arthropods from the main rice. For this reason, controlling the herbivore insects could use bioinsecticides derived from entomopathogenic fungal.

Population of Arthropod inhabiting the surface area of rice field in ratooned rice was higher than in the main rice. The highest predator arthropod population in the main rice growing season was found 70 days after planting (hst) when the rice entered the ripening phase, while the highest average arthropod rice population was found 42 days after harvest (dah) when the rice entered the generatif phase. The highest population of predator arthropod inhabiting the surface area of rice field was found in the plot applied by *Cordyceps militaris* and the lowest predator arthropod population was found in the land applied with abamectin. The highest Predatory insects spesies found in the main rice was *Pheropsophus occipitalis* and *Chlaenius* sp. was dominated in the ratooned rice. *Pardosa* sp. was the spider commonly found in main rice and ratooned rice.

The plot was applied by abamectin in the main rice season produces higher The filled grain than the other plots. While in ratooned rice, the application of entomopathogenic fungal was significant increased panicle length, number of grains, grain grain, and weight of 1,000 grains, grain weight per clump and grain production per ha. The highest rice production in ratooned rice was found in the plot that applied to *Beauveria bassiana*, *Metarhizium anisopliae*, and *Cordyceps militaris*.

Kata kunci: Bioinsecticide, Predators, Freshwater Swamp

