

THESIS

EFFECT OF GROWING MEDIUM AND PLANT GROWTH PROMOTING RHIZOBACTERIA (PGPR) FROM MIMOSA ROOT ON THE GROWTH OF PEGAGAN (*Centella asiatica*)



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DARA PUSPITA PANCA JULIANA. Pengaruh Media Tanam dan Plant Growth Promoting Rhizobacteria (PGPR) Akar Putri Malu Terhadap Pertumbuhan Tanaman Pegagan (*Centella asiatica*). Dibimbing oleh NIKEN TRISNANINGRUM.

ABSTRAK

Tanaman Pegagan (*Centella asiatica*) merupakan tanaman obat yang sudah banyak digunakan di Indonesia. Tanaman Pegagan tumbuh di lahan terbuka akan menghadapi kendala berupa semakin berkurangnya ketersediaan Pegagan di alam. Kendala lainnya yang terdapat pada petani Pegagan berupa kurangnya ilmu dalam pembudidayaannya. Maka dari itu diperlukan pembudidayaan Pegagan untuk menjaga ketersediaannya Pegagan agar tidak punah jika digunakan dalam jangka waktu yang lama. Tujuan dilaksanakannya penelitian ini adalah untuk mengetahui kombinasi media tanam dan pemberian PGPR akar putri malu yang tepat untuk pertumbuhan tanaman Pegagan. Penelitian dilakukan di kebun Program Studi Agroteknologi Universitas Darussalam Gontor pada bulan Oktober 2023 sampai dengan Januari 2024. Penelitian ini dirancang menggunakan metode Rancangan Acak Lengkap (RAL) dengan dua faktor perlakuan yang disusun secara faktorial. Faktor pertama adalah media tanam yang terdiri atas empat taraf yaitu: Tanah (M0), Tanah + Sekam bakar 1:1 (M1), Tanah + Sekam bakar + Pupuk kandang sapi 1:1:1 (M2), Tanah + Sekam bakar + Pupuk kandang kambing 1:1:1 (M3). Faktor kedua adalah Plant Growth Promoting Rhizobacteria (PGPR) yang terdiri dari 4 taraf yaitu: Kontrol (P0), PGPR akar putri malu 10ml/L (P1), PGPR akar putri malu 15ml/L (P2), PGPR akar putri malu 20ml/L (P3). Dari dua faktor tersebut terdapat 16 unit percobaan dan diulangan sebanyak 3 kali sehingga diperoleh 48 unit percobaan. Parameter pengamatan meliputi jumlah daun Pegagan (helai), jumlah tunas, berat basah daun Pegagan (g), berat kering daun Pegagan (g), berat basah akar Pegagan (g), dan analisa kadar klorofil. Data yang diperoleh dari pengamatan dianalisa dengan menggunakan ANOVA (Analysis of Variance). Jika terdapat pengaruh perlakuan, maka data akan dianalisa lebih lanjut menggunakan uji lanjut BNT 5%. Media tanam campuran tanah wadek, sekam bakar, dan pupuk kandang sapi memberikan hasil yang paling signifikan pada jumlah daun, jumlah tunas, kadar klorofil, dan berat kering daun. Plant Growth Promoting Rhizobacteria (PGPR) akar putri malu tidak memberikan hasil yang berbeda nyata antar perlakuan. Kombinasi PGPR akar putri malu dan media tanam dapat memberikan hasil yang signifikan terhadap berat basah daun dan berat basah akar tanaman pegagan.

Kata Kunci: Pegagan, PGPR, Pupuk Kandang Sapi, Pupuk Kandang Kambing

UNIVERSITAS DARUSSALAM GONTOR

DARA PUSPITA PANCA JULIANA. Effect of Growing Medium and Plant Growth Promoting Rhizobacteria (PGPR) from Mimosa Root on The Growth of Pegagan (*Centella asiatica*) Plants. Guided by NIKEN TRISNANINGRUM.

ABSTRACT

Pegagan (*Centella asiatica*) is a medicinal plant that has been widely used in Indonesia. Pegagan cultivated in open land will face obstacles in the form of decreasing availability of Pegagan in nature and a lack of knowledge in cultivation. Therefore, it is necessary to cultivate Pegagan to maintain its availability so that it does not become extinct if used for a long period and farmers continue to collect Pegagan in the wild. The purpose of this study is to determine the combination of planting media and the application of PGPR from Mimosa root for the growth of Pegagan plants. The research was carried out in the garden of the Agrotechnology Department, Darussalam Gontor University, for 4 months from October 2023 to January 2024. This study was designed using the Complete Random Design (CRD) method with two treatment factors arranged factorially. The first factor is the growing medium which consists of four levels, namely: Soil (M0), Soil + Burnt husk 1:1 (M1), Soil + Burnt husk + Cow manure 1:1:1 (M2), and Soil + Burnt husk + Cow manure 1:1:1 (M3). The second factor is Plant Growth Promoting Rhizobacteria (PGPR) which consists of 4 levels, namely: Control (P0), PGPR of Mimosa root root 10ml/L (P1), PGPR of Mimosa root root 15ml/L (P2), PGPR of Mimosa root root 20ml/L (P3). Of these two factors, there are 16 levels and 3 repetitions, resulting in 48 experimental units. The observation parameters included the number of Pegagan leaves (sheets), the number of shoots, the wet weight of Pegagan leaves (g), the dry weight of Pegagan leaves (g), the wet weight of Pegagan roots (g), and the analysis of chlorophyll levels. The data obtained from the observation was analyzed using ANOVA (Analysis of Variance). If there is an effect of treatment, the data will be further analyzed using the BNT 5% follow-up test. The planting medium mixed from alluvial soil, burnt husk, and cow manure gave the most significant results on the number of leaves, number of shoots, chlorophyll levels, and dry weight of leaves. Plant Growth Promoting Rhizobacteria (PGPR) of Mimosa root did not give a significant results between treatments. The combination of PGPR of Mimosa root and planting medium can provide significant results on the wet weight of leaves and the wet weight of the Pegagan roots.

Keyword: Cow Manure, Goat Manure, Pegagan, PGPR

VALIDATION

THESIS

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Has been approved by the Board of Examiners of Undergraduate Program on
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Board of Examiners
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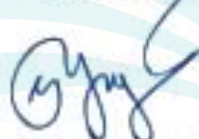


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DECLARATION

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I sincerely declare that this thesis originally belongs to my own work and not belongs to other researcher for different degree. Furthermore, this thesis is never published before, except some parts with their original references.

Otherwise, if it found that this thesis is plagiarism, I'm ready to be ceased academically.

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FOREWORD

Assalaamu'alaikum Warrahmatullaahi Wabarakaatuh

Praise be to Allah SWT for bestowing His grace, guidance, and gifts so that the author can complete this thesis with the title "The Effect of Growing medium and Plant Growth Promoting Rhizobacteria (PGPR) from Mimosa Root on the Growth of Pegagan (*Centella asiatica*)". This thesis is submitted as part of requirements to complete the Bachelor's degree in the Agrotechnology Study Program, Faculty of Science and Technology, Darussalam Gontor University, Ngawi.

With the limited knowledge that the author has, the author realizes that this thesis could not be completed without the support, guidance, and advice from various other parties during the completion process. So, with humility and respect, the author would like to express the deepest gratitude to all parties who helped, especially to:

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The author is well aware that in writing this thesis there are still limitations and shortcomings. Constructive suggestions and criticism are needed for the perfection of this work. The author hopes that this thesis can be useful for the author and readers.

Finally, may we all receive guidance and pleasure from Allah SWT, Aamiin.

Wassalaamu'alaikum Warrahmatullaahi Wabarakaatuh

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