

Aplikasi Pupuk Hayati Mikoriza Fumyco Dalam Meningkatkan Fase Vegetatif dan Generatif pada Kacang Tanah (*Arachis Hypogea L*)

Application of Biological Fertilizer Micoriza fumyco in Improving the Vegetative and Generative Phases of Peanut (*Arachis Hypogea L.*)

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ABSTRACT

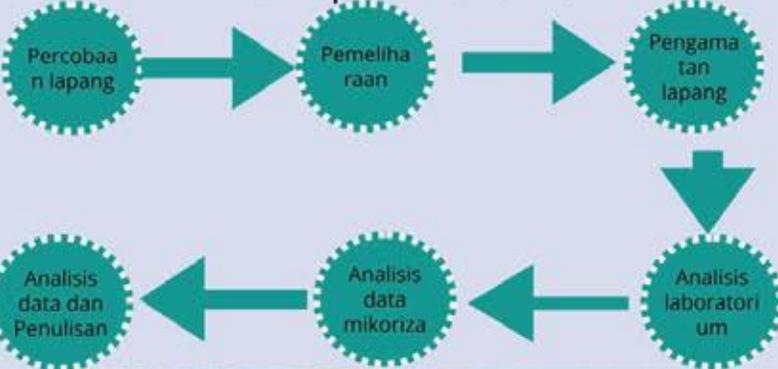
Peanut cultivation has long been cultivated in Indonesia and is generally grown on dry land. Peanut is the second most important commodity after soybean in Indonesia with high oil and protein content, peanut is an important source of vegetable fat and protein for Indonesian people. The continuous use of inorganic fertilizers can have a negative impact on the soil, so there is a need for environmentally friendly fertilizers such as biological fertilizers. One of the most popular biofertilizers today is mycorrhizal biofertilizer. The study was conducted in the experimental garden of Cikabayan IPB with an experimental design that used a three-factor Completely Randomized Design (CRD) using peanut plants. The treatment consisted of 8 levels of treatment, namely 1) control, 2) 100% NPK fertilizer, 3) 100% organic fertilizer, 4) 100% organic fertilizer + NPK, 5) 5 g mycorrhizae, 6) 100% NPK + mycorrhizal 5 gr, 7) 100% organic fertilizer + Mycorrhiza 5 gr, 8) Organic fertilizer + NPK 100% + Mycorrhiza 5 gr. The NPK fertilizer used was NPK 15-15-15 at a dose of 2.8 g/plant and organic fertilizer was given at a dose of 180 g/plant. This design was repeated 3 times so that the total experimental units were 24 experimental units. Parameters observed included plant height, number of primary branches, number of pods, pod weight, colonization or root infection, number and types of spores. The results showed that the application of NPK fertilizer + organic fertilizer + Mycorrhizae 5 g could increase vegetative and generative growth in peanut plants. The treatment of NPK+organic fertilizer+Mycorrhizal 5 g (AOM) had a very high percentage of infection, which was 86.67%. The AOM treatment had a high number of spores, which was 32 spores and 2 types of spores were successfully associated, namely *acaulospora* and *glomus etunicatum*.

METODOLOGI

Penelitian dilaksanakan pada Februari sampai Juni 2022

Lahan Kebun Percobaan Cikabayan, Laboratorium Kimia dan Kesuburan Tanah ITS, dan Laboratorium PT. Anugrah Sarana Hayati Bogor

Tahapan Penelitian



HASIL

Tabel 1 Hasil analisis tanah kebun cikabayan IPB dramaga

Parameter	Hasil	Kriteria
pH H ₂ O	4,51	masam
C-organik (%)	0,39	sangat rendah
N-total (%)	0,142	rendah
P-tersedia (Ppm)	6,954	sangat rendah
P-total (Ppm)	364,273	sangat tinggi
K-total (Ppm)	8,018	sangat rendah

Tabel 2 Hasil uji lanjut pengaruh pemberian pupuk mikoriza terhadap tinggi tanaman, jumlah cabang, jumlah polong, dan berat polong segar tanaman kacang tanah 8 MST.

Perlakuan	Tinggi tanaman 8 MST (cm)	Jumlah cabang/tanam 8MST	Jumlah polong/plot	Bobot polong segar (g)/plot
K: Kontrol	18 c	7 f	18 g	38 f
A: NPK	29 b	9 e	23 f	46 e
O: Organik	28 b	10 de	26 ef	49 de
AO: NPK + Organik	31 ab	11 cd	29 de	52 cde
M: Mikoriza	31 ab	13 bc	32 cd	55 bd
AM: NPK + Mikoriza	32 ab	13 bc	35 bc	58 abc
OM: Organik + Mikoriza	30 b	13 bc	38 ab	61 ab
AOM: NPK+Organik+Mikoriza	34 a	18 a	41 a	64 a

Tabel 3 Pengaruh pemberian mikoriza terhadap infeksi akar kacang tanah 12 MST

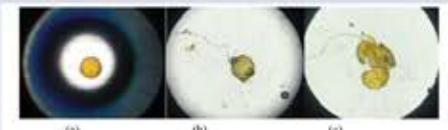
Perlakuan	Infeksi akar (%)
K: Kontrol	3.3 g
A: NPK	10 e
O: Organik	6.67 f
AO: NPK + Organik	10 e
M: Mikoriza	66.67 c
AM: NPK + Mikoriza	73.3 b
OM: Organik + Mikoriza	63.3 d
AOM: NPK+Organik+Mikoriza	86.67 a

Tabel 4 Pengaruh pemberian mikoriza terhadap jumlah spora mikoriza tanaman kacang tanah

Perlakuan	Jumlah spora
K: Kontrol	2 g
A: PK	4 e
O: Organik	3 f
AO: NPK + Organik	4 e
M: Mikoriza	10 c
AM: NPK + Mikoriza	12 b
OM: Organik + Mikoriza	8 d
AOM: NPK+Organik+Mikoriza	32 a



Gambar 1. Akar kacang tanah yang terinfeksi mikoriza dalam bentuk mikoriza arbuskular (MRA).



Gambar 2. *Acaulospora* (a) dan *Glomus etunicatum* (b) dan *Glomus etunicatum* pecah (c)

Gambar 1. Akar kacang tanah yang terinfeksi mikoriza diamati dengan mikroskop (perbesaran 100x)

Gambar 2. *Acaulospora* (a), *Glomus etunicatum* (b) dan *Glomus etunicatum* pecah (c)



SIMPULAN

- Penggunaan pupuk hayati mikoriza Fumyco berpengaruh nyata dalam meningkatkan tinggi tanaman, jumlah cabang, jumlah polong dan bobot polong. Perlakuan AOM menghasilkan tanaman dengan pertumbuhan terbaik dibandingkan dengan perlakuan lainnya.
- Perlakuan AOM yang diaplikasikan memiliki presentase infeksi yang sangat tinggi yaitu sebesar 86,67%.
- Pada perlakuan AOM memiliki jumlah spora yang tinggi yaitu berjumlah 32 spora dan Jenis spora yang berhasil berasosiasi ada 2 jenis yaitu *acaulospora* dan *glomus etunicatum*.

HASIL

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K.1



K.2



K.3



OM.1



OM.2



OM.3



Kontrol vs Pupuk Organik + Mikoriza

K.1



K.2



K.3



AOM.1



AOM.2



AOM.3



Kontrol Vs Pupuk Organik+Anorganik+Mikoriza

K.1



K.2



K.3



AM.1



AM.2



AM.3



Kontrol Vs Pupuk Anorganik + Mikoriza



K.1

K.2

K.3

M.1

M.2

M.3

Kontrol vs Mikoriza