

LAPORAN PRAKTEK LAPANGAN

**KARAKTERISASI BAKTERI *INDIGENOUS* DAN UJI EFEKTIVITAS
SEBAGAI MEDIA PERTUMBUHAN TANAMAN DARI LIMBAH LALAT
TENTARA HITAM (*Hermentia illucens* L.)**

*Characterization of Indigenous Bacteria and Effectiveness Test for Plant
Growth Promoting from Black Soldier Fly Waste (*Hermentia illucens* L.)*



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**PROGRAM STUDI PROTEKSI TANAMAN
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SUMMARY

ALREVANSYAH MAHARDHAN DENTARA. Characterization of Indigenous Bacteria and Effectiveness Test for Plant Growth-Promoting Rhizobacteria from Black Soldier Fly (*Hermetia illucens* L.) Frass (Supervised by ARINAFRIL and AGUNG ADI NUGROHO)

Black Soldier Fly (*Hermetia illucens* L.) has been widely reared and cultivated in many places in Indonesia. This insect produces residues, i.e., dead pupae and imagines as frass.

This experiment was aimed to characterize indigenous bacteria in dead pupae and imagines and to study the effectiveness of frass on the growth of plant. Study was carried out by sampling pupae and imagines, isolating bacteria with activities of proteolytic, chitinolytic, and phosphate-solubilization, analysing qualitative and quantitative Indole Acetic Acid hormone.

Pupae and imagines have proteolytic bacteria activities and phosphate solubilization, and to prove the effectiveness of frass from pupae and imagines as plant growth media. Chitinolytic activities were only found in pupae sample, and no keratinolytic activity occurred.

Pro 2.9 isolate from pupae sample produced the highest concentration of IAA hormone, i.e., 15.8 ppm, which was found after 48-hour incubation. Based on OD analysis, Pro 2.9 isolate still showed colony growth, because bacteria grew in logarithmic phase.

Antagonist test of Pro 2.9 and Na 1.15 bacteria isolates versus *Rigidonorus lignosus* showed smaller inhibition rates, i.e., 0.59 % and 0.62 %. Bioassay test was implemented on Kangkung (*Ipomoea aquatic* Eorsk.) and showed that pupal treatment had no significant difference in prolonging plant height, stem diameter, and number of leaves, compared to control, urea and compost.

This study concluded that there were indigenous bacteria activities in pupal and imaginal samples, and pupal treatment as organic matters, which later gave better yield.

Keywords: Enzyme activities, *Hermetia illucens* L., IAA, Imagines, Pupae