

INTISARI

POTENSI LARVA KUMBANG BADAK (*Oryctes rhinoceros*) SEBAGAI DEKOMPOSER LIMBAH BATANG KELAPA SAWIT

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Imago Kumbang Badak (*Oryctes rhinoceros*) merupakan hama utama kelapa sawit, sementara larvanya tidak memakan jaringan hidup melainkan sisa bahan organik di kebun dan kawasan pabrik pengolahan minyak kelapa sawit. Informasi tentang peran larva sebagai dekomposer sisa bahan organik masih terbatas. Penelitian bertujuan untuk mengetahui potensi larva kumbang badak sebagai dekomposer sisa bahan organik berupa batang kelapa sawit (BKS) di bawah kondisi insektarium Pusat Penelitian Kelapa Sawit Unit Marihat, Pematang Siantar, Sumatra Utara dan di areal kebun kelapa sawit PTPN III Kebun Pulau Mandi, Asahan, Sumatra Utara. Preferensi media peneluran oleh kumbang badak betina dan potensi larva mendekomposisi BKS diuji di insektarium. Potensi larva kumbang badak sebagai dekomposer BKS juga diuji di areal kebun kelapa sawit. Kriteria dekomposisi BKS meliputi perubahan sifat fisik (volume, bobot dan skor pelapukan), kimia (rasio C/N, kadar air dan pH) dan biologi (diversitas arthropoda). Hasil penelitian menunjukkan bahwa larva kumbang badak berpotensi signifikan sebagai dekomposer batang kelapa sawit (BKS). Imago kumbang badak betina menunjukkan preferensi peneluran pada sisa BKS umur 3 bulan yang dicampur pupuk organik dan serbuk kayu. Larva kumbang badak instar 3 di rumah kaca selama tiga minggu mampu mengurangi signifikan volume BKS sebesar 10,96% vs Kontrol 1,24% dan rasio C/N sebesar 58,60% vs Kontrol 41,7%, namun tidak signifikan mengurangi bobot BKS. Perlakuan L3 meningkatkan signifikan pH (10,64%), sebelum perlakuan 5,5 menjadi 6,4 setelah perlakuan walaupun tidak berbeda dengan Kontrol. L2 mampu mengurangi signifikan (14,67%) volume BKS umur 0, 3, 7 dan 12 bulan. Di bawah kondisi lapangan larva L3 mampu meningkatkan signifikan skor pelapukan BKS sebesar 83,33%, bobot BKS (60,81%) dengan penambahan EM4 justru tidak signifikan meningkatkan pelapukan dan penurunan Bobot BKS. Perlakuan larva mampu menurunkan rasio C/N, namun pada larva saja tidak signifikan (25,19%) sedangkan jika dicampur dengan EM4 penurunan C/N signifikan sebesar 27,20%. Semua perlakuan tidak berpengaruh signifikan terhadap pH dan kadar air BKS. pH sebelum dan sesudah perlakuan relatif netral demikian juga setelah perlakuan. Perlakuan larva menaikkan pH dari 6,83 menjadi 7,47, sementara larva dicampur EM4 menurunkan pH dari 7,07 menjadi 7,03. Perlakuan larva tidak mempengaruhi diversitas artropoda pada BKS. Pemanfaatan larva kumbang badak untuk pelapukan limbah kelapa sawit perlu dikaji lebih lanjut.

Kata kunci : Kelapa sawit, Dekomposisi, Larva *Oryctes rhinoceros*, Rasio C/N

THE POTENCY OF RHINOCEROS BEETLE LARVAE (*Oryctes rhinoceros*) AS A DECOMPOSERS OF OIL PALM TRUNK WASTE

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ABSTRACT

The adult Rhino Beetle (*Oryctes rhinoceros*) is a major pest of oil palm, while its larva does not feed on alive tissue but on organic waste in plantations and palm oil processing plants. Information on the role of larval Rhino Beetle as a decomposer of organic waste is still limited. The study aimed to determine the potential of the larva as a decomposer of organic waste in the form of oil palm trunks (OPT) under insectarium conditions of the Marihat Unit of the Oil Palm Research Center, Pematang Siantar, North Sumatra and in the oil palm plantation area of PTPN III Kebun Pulau Mandi, Asahan, North Sumatra. The preference of egg-laying media by female Rhino Beetles and the potential of larvae to decompose the OPT were tested in the insectarium. The potential of Rhino Beetle larvae as OPT decomposers was also tested in the oil palm plantation area. The OPT decomposition criteria include changes in physical properties (volume, weight and rotten score), chemical (C/N ratio, water content and pH) and biological (arthropod diversity). The results showed that the Rhino Beetle larvae have significant potential as decomposers of oil palm trunks. Female beetle showed a preference for laying eggs on 3-month-old OPT mixed with organic fertilizer and sawdust. The 3rd instar larvae in under condition of screen house within 3 weeks were able to significantly reduce the OPT volume by 10.96% vs Control 1.24% and C/N ratio by 58.60% vs Control 41.7%, but not significantly to reduce weight of OPT. The 3rd instar larvae significantly increased pH (10.64%), before treatment 5.5 to 6.4 after treatment although not different from Control. The 2nd instar larvae significantly reduced (14.67%) volume of OPT aged 0, 3, 7 and 12 months. Under field conditions, the 3rd instar larvae were able to significantly increase the OPT rotten score by 83.33%, the OPT weight (60.81%) with the addition of EM4 did not significantly increase rotting and decrease OPT weight. The larvae treatment was able to reduce the C/N ratio, but in larvae alone it was not significant (25.19%) while when mixed with EM4 the C/N decreased significant by 27.20%. All treatments did not significantly affect the pH and water content of OPT. The pH before and after treatment was relatively neutral as well as after treatment. The larvae treatment increased pH from 6.83 to 7.47, while larvae mixed with EM4 decreased the pH from 7.07 to 7.03. Larvae treatment did not affect the diversity of arthropods in BKS. Utilization of the Rhino Beetle larvae for decomposition of oil palm wasters needs further study.

Keywords: C:N ratio, Decomposition, Oil palm, *Oryctes rhinoceros* larvae