PENGARUH BERBAGAI DOSIS SERBUK JAHE MERAH (*Zingiber officinale* var. rubrum) TERHADAP PERKEMBANGAN HAMA GUDANG *Sitophilus zeamais* DAN KUALITAS BENIH JAGUNG

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ABSTRAK

Jahe merah (*Zingiber officinale* var. *rubrum*) mengandung minyak atsiri dengan komponen senyawa aktif seperti gingerol, zingiberene, dan saponin yang bersifat toksik terhadap serangga. Penelitian ini bertujuan untuk mengetahui pengaruh berbagai dosis serbuk jahe merah terhadap mortalitas, populasi, dan daya tolak *S. zeamais* serta dampaknya terhadap penyusutan bobot dan viabilitas benih jagung selama penyimpanan. Penelitian dilakukan secara eksperimental di laboratorium menggunakan Rancangan Acak Kelompok Lengkap (RAKL) satu faktor dengan enam perlakuan dosis (0g, 3g, 6g, 9g, 12g, dan 15g/100 g benih) dan empat ulangan. Data dianalisis menggunakan sidik ragam (ANOVA) lalu diuji lanjut DMRT (*Duncan Multiple Test*) taraf 5%. Hasil penelitian menunjukkan bahwa perlakuan serbuk jahe merah berpengaruh nyata terhadap semua parameter pengamatan. Dosis serbuk jahe merah 15 gram memiliki nilai mortalitas tertinggi yaitu sebesar 75% pada 28 HSA dan efektivitas sebesar 60,28%. Dosis 15 gram juga menekan populasi *S. zeamais* menjadi 34,25 ekor pada 60 HSA, lebih rendah dibanding kontrol (83,75 ekor), menurunkan susut bobot benih menjadi 1,33% pada 60 HSA lebih rendah dibanding kontrol (3,50%), dan viabilitas benih tetap terjaga dengan daya kecambah sebesar 86,25%, lebih tinggi dari kontrol (76,25%). Nilai repelensi tertinggi juga ditunjukkan pada dosis 15 gram, yaitu 95,45%. Dengan demikian, perlakuan 15 g/100 g benih merupakan dosis terbaik karena mampu meningkatkan mortalitas, menekan populasi *S. zeamais*, mengurangi susut bobot, mempertahankan viabilitas benih, dan mempunyai nilai repelensi yang tinggi.

Kata kunci : Pestisida nabati, minyak atsiri, mortalitas, populasi, viabilitas

THE EFFECT OF VARIOUS DOSES OF RED GINGER POWDER (*Zingiber officinale* var. rubrum) ON THE DEVELOPMENT OF THE STORAGE PEST *Sitophilus zeamais* AND THE QUALITY OF CORN SEEDS

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ABSTRACT

Red ginger (*Zingiber officinale* var. rubrum) contains essential oils with active compounds such as gingerol, zingiberene, and saponins that are toxic to insects. This study aimed to determine the effect of various doses of red ginger powder on the mortality, population, and repellency of Sitophilus zeamais as well as its impact on seed weight loss and viability of stored corn seeds. The research was conducted experimentally in the laboratory using a Completely Randomized Block Design (CRBD) with one factor, consisting of six treatment doses (0 g, 3 g, 6 g, 9 g, 12 g, and 15 g/100 g seeds) and four replications. Data were analyzed using analysis of variance (ANOVA) and further tested with Duncan's Multiple Range Test (DMRT) at a 5% significance level. The results showed that red ginger powder treatments significantly affected all observed parameters. The 15 g dose produced the highest mortality (75% at 28 days after application) with an efficacy of 60.28%. The same dose also suppressed the population of *S. zeamais* to 34.25 adults at 60 days, lower than the control (83.75 adults), reduced seed weight loss to 1.33% at 60 days compared to the control (3.50%), and maintained seed viability with a germination rate of 86.25%, higher than the control (76.25%). The highest repellency value was also observed at the 15 g dose, reaching 95.45%. Thus, the 15 g/100 g seed treatment was the most effective, as it increased mortality, suppressed population growth, reduced weight loss, maintained seed viability, and provided strong repellency against *S. zeamais*.

Keywords: Botanical pesticides, essential oils, mortality, population, viability