

RINGKASAN

Padi hitam (*Oryza sativa* L.) menghasilkan beras berwarna hitam dengan beberapa varietas di Indonesia seperti varietas Laka dari Nusa Tenggara Timur dan varietas Cibeusi dari Subang, Jawa Barat. Gamal (*Gliricidia* sp.) termasuk kedalam famili Leguminosae dan sub famili Mimosoideae yang mengandung 3,15% N, 0,22% P, 2,65% K, 1,35% Ca, dan 0,41% Mg, sedangkan urin kambing memiliki kandungan Nitrogen 0,51 – 0,71%. Potensi dari daun gamal dan urin kambing ini dapat dijadikan pupuk organik cair pengganti pupuk anorganik kimia cair, karena kedua bahan tersebut sangat tersedia di lingkungan petani padi. Pupuk organik cair biasa diaplikasikan melalui daun dengan disemprotkan, karena unsur hara mikro yang dikandungnya cepat diserap, sehingga dapat memacu pertumbuhan dan meningkatkan efisiensi metabolisme pada daun, tetapi cara aplikasi tersebut tidak cukup optimal karena cepat menguap dalam keadaan lingkungan yang panas dan cepat hilang karena tercuci oleh air hujan.

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh dosis, cara aplikasi Pupuk Organik Cair gamal & kambing (POCgk) dan pupuk NPK terhadap pertumbuhan dan hasil tanaman padi hitam serta interaksi yang terjadi diantara ketiganya. Penelitian ini dilaksanakan sejak bulan November 2022 sampai bulan Januari 2023 di Rumah Kaca Fakultas Pertanian Universitas Islam Sumatera Utara, Medan. Rancangan penelitian yang digunakan adalah Rancangan Acak Kelompok (RAK) faktorial dengan 3 faktor dan 3 ulangan, yaitu 1) dosis POCgk yang terdiri dari 3 taraf yaitu P₀ (0 ml POCgk), P₁ (180 ml POCgk), dan P₂ (360 ml POCgk), 2) cara aplikasi POC yang terdiri dari 2 taraf yaitu D₁ (disiram) dan D₂ (disemprot), dan 3) pupuk NPK yang terdiri dari 2 taraf yaitu N₀ (tanpa NPK) dan N₁ (dengan NPK). Peubah yang diamati adalah analisis tanah awal dan analisis hara POCgk, tinggi tanaman, jumlah anakan, Bagan Warna Daun (BWD), jumlah malai, jumlah bulir per malai, bobot bulir per malai, bobot gabah berisi, bobot gabah hampa, bobot gabah total, rasio gabah berisi & hampa, bobot kering tajuk dan bobot kering akar tanaman padi hitam.

Hasil penelitian menunjukkan bahwa dosis POCgk memberikan pengaruh nyata terhadap peubah amatan tinggi tanaman pada 4 MST dan 6 MST, jumlah anakan pada 4 MST dan 6 MST, jumlah malai, bobot gabah berisi, bobot gabah total dan bobot kering tajuk tanaman padi hitam. Cara aplikasi POCgk memberikan pengaruh nyata terhadap peubah amatan jumlah malai tanaman padi hitam. Pengaplikasian pupuk NPK memberikan pengaruh nyata terhadap peubah amatan Bagan Warna Daun (BWD) pada 6 MST dan bobot gabah hampa. Terjadi interaksi antara dosis POCgk dan cara aplikasi POCgk terhadap peubah amatan Bagan Warna Daun (BWD) pada 6 MST, jumlah bulir per malai, bobot bulir per malai, bobot gabah hampa dan rasio gabah hampa & berisi tanaman padi hitam. Interaksi antara dosis POCgk dan pupuk NPK terjadi pada peubah amatan jumlah malai, bobot gabah berisi, bobot gabah hampa, bobot gabah total dan bobot kering tajuk tanaman padi hitam. Interaksi antara cara aplikasi POCgk dan pupuk NPK terjadi pada peubah amatan bobot kering tajuk tanaman padi hitam, dan interaksi antara dosis POCgk, cara aplikasi POCgk dan pupuk NPK terjadi pada peubah amatan jumlah malai tanaman padi hitam.

Kata Kunci: dosis, cara aplikasi, NPK, gamal, urin kambing, padi hitam.

SUMMARY

Black rice (*Oryza sativa* L.) produces black rice with several varieties in Indonesia such as the Laka variety from Nusa Tenggara Timur and the Cibeusi variety from Subang, Jawa Barat. Gamal (*Gliricidia* sp.) is part of the Leguminosae family and the Mimosoideae sub-family which contains 3.15% N, 0.22% P, 2.65% K, 1.35% Ca, and 0.41% Mg, while goat urine has Nitrogen's content of 0.51 - 0.71%. The potential of gamal leaves and goat urine can be used as liquid organic fertilizer to replace liquid chemical inorganic fertilizers, because both materials are widely accessible by farmers. Liquid organic fertilizer applied through the leaves by spraying, because the micro-nutrients contained are quickly absorbed, to stimulate growth and increase metabolic efficiency in the leaves, but the application method is not sufficient because it evaporates in a warm condition and leached away by rainwater.

The purpose of this study was to determine the effect of dose, application method of gamal & goat Liquid Organic Fertilizer (LOFgk) and NPK fertilizer on the growth and yield of black rice plants and the interaction that occurs between the three of these. This research was done from November 2022 to January 2023 at the Greenhouse of the Faculty of Agriculture, Universitas Islam Sumatera Utara, Medan. The research design used was factorial Randomized Group Design (RGD) with 3 factors and 3 replications, which are 1) dose of LOFgk consisting of 3 levels namely P₀ (0 ml LOFgk), P₁ (180 ml LOFgk), and P₂ (360 ml LOFgk), 2) application method consisting of 2 levels namely D₁ (watered) and D₂ (sprayed), and 3) NPK fertilizer consisting of 2 levels namely N₀ (without NPK) and N₁ (with NPK). The observed parameters were early soil analysis and LOFgk nutrient analysis, plant height, number of tillers, Leaf Color Chart (LCC), number of panicles, number of grains per panicle, grain weight per panicle, filled grain weight, hollow grain weight, total grain weight, ratio of filled & hollow grain, dry weight of crown and roots of black rice plants.

The results showed that the dose of LOFgk gives significant effect on the observed parameters of plant height at 4 weeks and 6 weeks, the number of tillers at 4 weeks and 6 weeks, the number of grains, grain weight, total grain weight and crown dry weight. The application method of LOFgk gives significant effect on the observed parameter number of panicles of black rice plants. The application of NPK fertilizer gives significant effect on the observation parameters of Leaf Color Chart (LCC) at 6 weeks and empty grain weight. There was an interaction between the dose of LOFgk and the application method on the observed parameters of Leaf Color Chart (LCC) at 6 weeks, the number of spikelets per panicle, the weight of spikelets per panicle, the weight of empty grain and the ratio of empty & filled grain of black rice plants. The interaction between the dose of LOFgk and NPK fertilizer occurred on the observed parameters of number of panicles, weight of filled grain, weight of hollow grain, total grain weight and crown dry weight of black rice plants. The interaction between the application method of LOFgk and NPK fertilizer occurred on the observed parameter of crown dry weight, and the interaction between the dose of LOFgk, the application method of LOFgk and NPK fertilizer occurred on the observed parameter of the number of panicles of black rice plants.

Keywords: dose, application method, NPK, gamal, goat urine, black rice.