PERKECAMBAHAN DAN PERTUMBUHAN BENIH PADI (*Oryza sativa* L.) VARIETAS IR 64 FASE *AFTER RIPENING* PADA PEMBERIAN BERBAGAI KONSENTRASI DAN LAMA PERENDAMAN LARUTAN KALIUM NITRAT (KNO_3)

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ABSTRAK

Salah satu tantangan dalam produksi benih padi adalah fenomena dormansi pasca panen (*after ripening dormancy*). Usaha pematahan dormansi dapat dilakukan menggunakan larutan kalium nitrat (KNO_3). Penelitian bertujuan mengetahui pengaruh berbagai konsentrasi dan lama perendaman KNO_3 terhadap pematahan dormansi varietas IR 64 fase *after ripening*. Metode penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan 10 taraf perlakuan yaitu (P0) kontrol atau tanpa perendaman, (P1) KNO_3 1% selama 24 jam, (P2) KNO_3 1% selama 36 jam, (P3) KNO_3 1% selama 48 jam, (P4) KNO_3 2% selama 24 jam, (P5) KNO_3 2% selama 24 jam, (P6) KNO_3 2% selama 48 jam, (P7) KNO_3 3% selama 24 jam, (P8) KNO_3 3% selama 36 jam, dan (P9) KNO_3 3% selama 48 jam. Penelitian dilakukan pada Juni sampai Agustus 2025 di Kebun Percobaan UPN "Veteran" Yogyakarta. Analisis data menggunakan *Analysis of Variance* (ANOVA) dengan uji lanjut DMRT dan kontras orthogonal taraf 5%. Hasil penelitian menunjukkan berbagai konsentrasi dan lama perendaman KNO_3 berpengaruh nyata terhadap potensi tumbuh maksimum, daya berkecambah, keserempakan tumbuh, kecepatan tumbuh, intensitas dormansi, tinggi tanaman 15 HST dan 30 HST, jumlah daun 15 HST dan 30 HST, luas daun, dan volume akar. Konsentrasi 1% lama perendaman 48 jam paling baik dalam perkecambahan dan konsentrasi 2% lama perendaman 24 jam paling baik dalam pertumbuhan padi varietas IR 64 fase *after ripening*.

Kata kunci*: *after ripening, kno3, padi, pematahan dormansi

GERMINATION AND GROWTH OF RICE (*Oryza sativa* L.) SEEDS VARIETY IR 64 AT THE AFTER-RIPENING PHASE UNDER VARIOUS CONCENTRATIONS AND SOAKING DURATION OF POTASSIUM NITRATE (KNO_3) SOLUTION

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ABSTRACT

One of the challenges in rice seed production is the occurrence of post-harvest dormancy (after-ripening dormancy). Dormancy breaking can be carried out using potassium nitrate (KNO_3) solution. This study aimed to determine the effect of various concentrations and soaking durations of KNO_3 on dormancy breaking of IR 64 rice seeds in the after-ripening phase. The experiment used a Completely Randomized Design (CRD) with ten treatments, consisting of (P0) control without soaking; (P1) 1% KNO_3 for 24 hours; (P2) 1% for 36 hours; (P3) 1% for 48 hours; (P4) 2% for 24 hours; (P5) 2% for 36 hours; (P6) 2% for 48 hours; (P7) 3% for 24 hours; (P8) 3% for 36 hours; and (P9) 3% for 48 hours. The research was conducted from June to August 2025 at the Experimental Farm of UPN "Veteran" Yogyakarta. Data were analyzed using Analysis of Variance (ANOVA), followed by DMRT and orthogonal contrast tests at the 5% level. The results showed that different KNO_3 concentrations and soaking durations significantly affected maximum growth potential, germination percentage, germination uniformity, germination speed, dormancy intensity, plant height at 15 and 30 days after sowing, number of leaves at 15 and 30 days after sowing, leaf area, and root volume. A concentration of 1% for 48 hours produced the best germination performance, while 2% for 24 hours resulted in the best early growth of IR 64 rice seeds in the after-ripening phase.

Keywords: *after ripening, KNO_3, rice, dormancy breaking*