

Smart Agronomy for Sustainable Crop Production

23rd National & 2nd International Conference of BSA

Date : 07 -09 December 2024

Venue: Bangladesh Agricultural University
Mymensingh, Bangladesh

Organized by

Bangladesh Society of Agronomy (BSA)

https://agronomybd.org/

Abstract No. 77

Determination of antioxidant and nutritional properties of jute leaf as a vegetable influenced by plant age

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Abstract The jute plant (Corchorus sp.), known as the golden fiber of Bangladesh, is a significant bast fiber globally and a nutritious vegetable rich in vitamins, minerals, protein, and antioxidants. A study conducted in April-May 2022 at the Jute Agriculture Experimental Station, Jagir, Manikganj, Bangladesh, assessed the antioxidant and nutritional properties of jute leaves at different plant ages (15, 30, and 45 days) using a Randomized Complete Block Design (RCBD) with three replicates. Leaves from the Merha green (Corchorus capsularis L.) genotype were analyzed. The results showed that 30-day-old leaves contained the highest levels of Vitamin A (203.09 mg/100g), ash (4.07%), carbohydrates (7.05%), and fat (0.80%), while 15-day-old leaves had the highest Vitamin C (54.66 mg/100g), crude protein (33.69%), calcium (4.62%), potassium (1.33%), nitrogen (5.39%), and iron (459.09%). Moisture and magnesium content peaked in 30-day-old leaves. Correlation and path coefficient analyses revealed significant positive and negative relationships among proximate and mineral components. Antioxidant properties, including total phenols, flavonoids, proanthocyanidins, DPPH radical scavenging, ferric ion reducing power, and H2O2 radical scavenging activity, were highest in 30-day-old leaves. In conclusion, consuming jute leaves within 15–30 days after planting provides optimal nutritional and antioxidant benefits, making them a valuable addition to diets.

Keywords Vitamins, proximate, minerals, antioxidant properties, jute leaf, plant age

Abstract No. 78

Effect of nitrogen rates on the performance modern *boro* rice variety

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The nutrient-enriched, short-duration rice variety BRRI dhan100 performs well but exhibits lodging in some areas, possibly due to varying nitrogen (N) applications. To address this, a field experiment was conducted during Boro 2023 at the Bangladesh Rice Research Institute, Regional Station, Sonagazi, Feni. The objectives were to evaluate BRRI dhan100's response to different N levels and determine the optimal N requirement for maximum yield. Eight treatments on nitrogen (N) levels were applied in the experiment as follows: T1= Researcher's Practice (RP): N, P, K, S and Zn @ 124, 22, 75, 20 and 4 kg ha^{-1} T2 = T1 – N, T3 = T1 but 50 kg N ha-1, T4 = T1 but 100 kg N ha^{-1}, T5 = T1 but 150 kg N ha^{-1}, T6 = T1 but 200 kg N ha^{-1}, T7 = Soil test based (STB) nutrient rates (N, P, K, S and Zn @ 88, 15, 54, 6 and 1 kg ha^{-1}), and T8 = Control (No fertilizers applied). BRRI dhan100 was used in the experiment. Forty-day-old seedlings were transplanted on 15 January 2023 using 2-3 seedlings hill^{-1}, The spacing was 20 cm × 20 cm and unit plot size was 12 m^2. The experiment was laid out following RCBD with 3 replications. Results showed significant effects of treatments on phenology, yield, and yield components. T6 (200 kg N ha^{-1}) produced the highest grain yield (7.47 t ha^{-1}), statistically similar to T5, T1, T4, and T7. The lowest yield was observed in T8 (3.51 t ha^{-1}) and T2 (4.52 t ha^{-1}). Additional N beyond 100 kg ha^{-1} did not significantly increase yield. T6 also produced the maximum panicles per square meter (275), while T8 had the lowest (218). Based on the findings, 100 kg N ha^{-1} is recommended for BRRI dhan100 to achieve high yields while minimizing lodging.

Keywords Grain yield, nitrogen, harvest Index, panicle, sterility