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| **Title of the Thesis** | **: Effect of Seaweed Extract under Different Doses of NPK on Productivity of Irrigated Wheat** |
| **Name of the student** | **: Rohullah** |
| **Major Subject** | **: Agronomy** |
| **Name and Designation of**  **Major Advisor** | **: Dr. M.C. Dwivedi Professor Agronomy and Incharge, R.F Chatha** |
| **Degree to be awarded** | **: Ph.D.** |
| **Year of award of degree** | **: 2023** |
| **Name of University** | **: Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, India** |

**ABSTRACT**

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A field experiment was conducted during *Rabi* seasons of 2020-21 and 2021-22 at Research Farm, SKUAST-J Chatha, The soil of experimental site was sandy loam in texture with slightly alkaline in reaction (pH 7.47), low in organic carbon (4.8 g/kg) and available nitrogen (212.30 kg/ha) but medium in available phosphorus (13.82 kg/ha) and potassium (141.16 kg/ha). The experiment was conducted in split-split plot design with three replications. The treatments consisted of three seed treatment with seaweed extract *viz.,* seed treatment @ 3 ml/kg seed, seed priming @ 3 ml/kg seed, and without seed treatment (control) in main plot, seven foliar application of seaweed extract, *viz*., F1: foliar application of seaweed extract @ 2 ml/L water at tillering stage, F2: foliar application of seaweed extract @ 4 ml/L water at tillering stage, F3: foliar application of seaweed extract @ 2 ml/L water at heading stage, F4: foliar application of seaweed extract @ 4 ml/L water at heading stage, F5: foliar application of seaweed extract @ 2 ml/L water at tillering stage & heading stage, F6: foliar application of seaweed extract @ 4 ml/L water at tillering stage & heading stage, F7: control in sub plot, and two level of NPK, *viz*., 75% NPK and 100% NPK in sub-sub plot. The recommended dose of fertilizer was 100 kg N + 50 kg P + 40 kg K/ ha. Accordingly, half of the total dose of recommended nitrogen, full dose phosphorus and potash were applied at the time of sowing and the remaining half dose of nitrogen was applied at CRI boot stage of crop in two split. The wheat verity “HD-3086” was sown with *Kera* method at 20 cm row spacing using seed rate of 100 kg/ha in the 3rd week of November during both years.

The result revealed that seed priming and treatment with seaweed extract did not show any significant influence on growth parameters, yield attributes, yield and uptake of NPK than without seed treatment (control) of wheat. However, foliar application of seaweed extract @ 4 ml/L water at tillering and heading stage was resulted in significantly higher yield attributes, yield and uptake of NPK as compared to control. Also it was statistically at par with foliar application of seaweed extract @ 2 ml/L water at tillering and heading stage, On the other hand plant height and number of tillers showed non-significant effect. Among two graded level of NPK 100% recorded significantly higher plant height, number of tillers leaf area index, dry matter accumulation, all stage except 30 DAS but crop growth rate from 60-90 DAS and relative growth rate from 30-60 DAS than 75% NPK. The foliar application of seaweed extract and graded levels of NPK had significant effect on, growth parameters, yield attribute and yield. In interaction effect of foliar application of seaweed extract @ 4 ml/L water at tillering and heading stage recorded higher leaf area index, dry matter accumulation, yield attribute and yield during both the years.

Keyword: Seed treatments, seaweed extract, foliar application, NPK doses, growths, wheat

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| Signature of Major Advisor | Signature of the Student |