

## **ABSTRACT**

This research aimed to determine and compare the nutritional parameters of three Rice cultivars (Super 1509, Super 2000 and Super kainat). These three cultivars of rice were grown in botanical garden and exposed to different levels of sodium and lithium chloride stress. Plants were monitored throughout the growth period and harvested after seed formation. The biochemical analyses for Carbohydrates, Sugar, Protein, Flavonoid, Phlobotannin, Moisture Content, Ash content, Lipids, Antioxidant Activity, Phenolic content, crude Fiber and physical tests for Weight, Length and Width were carried out. The results showed that under lithium stress, Flavonoid and protein content was found to be higher in Super kainat while Phlobotannin content was in higher quantity in Super kainat under sodium stress. Carbohydrates content was found higher in Super 2000 under sodium stress. The results also highlight the cooking and physicochemical properties of rice depending on the amylose content of rice cultivars. Amylose content in Super 2000, Super 1509 and Super kainat was found to be 1.35% and 1.36% under sodium stress and 0.36% under lithium stress respectively. Super kainat under lithium stress was found to be rich in lipids content as compare to other cultivars. It was found that the crude fiber was higher in Super 2000 under lithium stress. The moisture content of three cultivars was compared in the presence of sodium and lithium stress. The moisture content was found to be highest in Super kainat cultivar under lithium stress, which was 50.47%. Super 2000 was found to have the highest Ash content under lithium stress as compared to that Super kainat and Super 1509 cultivars, which was around 73.92%. The highest amount of Antioxidant and Phenolic content was found in Super kainat under sodium stress. The physical test results showed that the ratio of Length and Width of rice grains were found higher in Super 2000 under Li stress and the Weight of rice grains was more in Super 1509 under lithium stress. The study concludes that under lithium stress, Super kainat showed the high nutritional parameter while Super 1509 showed low nutritional profile. Under sodium stress, Super 2000 showed best nutritional content profile while Super kainat showed the lowest rate of nutritional components under sodium stress.