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World population is escalating day by day and by 2050 it is expected to reach 9.1 billion, but agricultural production is not rising at a parallel pace. In order to feed the world population, global agricultural production should be increased by 60-110 per cent and 70 per cent more food for an additional 2.3 billion people by 2050 [1,2]. Agriculture production is dwindled mainly due to biotic and abiotic stresses. Abiotic stress is one of the major factors which negatively a ect the crop growth and productivity world-wide. Hence, these are one of major area of concern to ful ll the required food demand [3,4]. e major abiotic stresses worldwide causing risks to food security are high salinity, drought, submergence and cold [5,6]. Among these stresses, drought is the rst environmental stress responsible for decrease in agricultural production worldwide and to ful ll the demand, tons of e orts are being applied to improve crop yields [7,8]. Drought a ects plants in countless ways like it a ects plant growth, yield, membrane integrity, pigment content, osmotic adjustments, water relations and photosynthetic activity [9]. Salinity is the second most prevalent soil problem in rice-growing countries a er drought [10] and rice is considered as a salt sensitive crop in early seedling stages [11] which limits its productivity [12,13]. Among 130 mha of world rice area, approximately 30 per cent area contains salt levels too high to allow normal rice yield. e decline in rice yield under reasonably salt-a ected soils is anticipated to be 68 per cent [14]. Due to global warming, rise in sea levels, surplus irrigation without appropriate drainage in inlands and underlying rocks rich in detrimental salts, area under salt stress is growing. It is expected that if present scenario persists, 50 per cent of current cultivated land will be loss for agriculture by 2050 [15]. Cereals are the most signi cant source of calories to humans. Rice, wheat and maize o er 23%, 17% and 10% calories globally [16]. Rice (*Oryza sativa*L.) is a well-known cost-e ective cereal, also staple food included in the diet. It is a chief and most vital source of food for more than half of the population and more than 90 per cent of the world's rice is grown and consumed in Asia, where 60 per cent of the earth's people live and also a major income means to rural people [17]. Embracing of green revolution varieties lead to a radical transformation in rice production. Between 1996 and 2011, the population of thickly populated low-income countries raised by 110 per cent, but rice production increased by 180 per cent from 257 million tons in 1996 to 718 million tons in 2011. Even with these advances in rice production, still 800 million people are not getting food every day. It is anticipated that we will have to produce 25 per cent more rice by the year 2030 [18]. is supplementary rice has to be produced from fertile lands without bringing up additional weak lands for rice cultivation. To improve the yield under drought and salt stress condition, countless breeding programs have been initiated. Although conventional breeding programmes such as hybridization, hybrid breeding, wide hybridization and ideotype breeding have resulted in development of some salt-and drought tolerant rice varieties and several lines have been released in the Philippines, Bangladesh and India [19], but the success rate of conventional breeding is not ample [19]. Drought tolerance in rice is a complex trait and it is determined by various component traits. ese traits are governed by many genes with huge environmental interaction, with low heritability, and thus are di cult to investigate [20]. Salinity stress tolerance is a quantitative

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