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■ Japanese journal of crop science

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[\[Full-text PDF \(830K\) \]](#) [[References](#)]**Effect of Sodium Chloride on the Panicle and Spikelet Morphogenesis in Rice : I. External shoot morphology during young panicle formation**

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Abstract:

The effect of salinity stress on external shoot morphology in relation to panicle development was studied. Three rice cultivars, Nipponbare, as a Japonica-type rice, Blue bonnet as a Javanica-type, and Konosuke, a Japonica-type sensitive to soil stress were used and were grown in pots by sand culture method with various concentrations of sodium chloride. Injury symptoms in different cultivars were expressed in various ways. Treatment during the young panicle formation stage caused green leaves to become pale yellow followed by browning, starting from leaf tip to base, and the lowermost leaf was affected first, followed by younger upper leaves on the same culm. Under conditions of increased salinity and with prolonged duration of treatment, flag leaf burning became more pronounced. The injury symptom during late panicle growth period was expressed as a reduction in culm length, and a number of late-grown tiny tillers came out on upper nodes in some plants. Heading time was so remarkably delayed that the period of heading was prolonged. Under higher salt conditions, basal part of the panicle started to emerge earlier, while the tip remained inside the leaf sheath. The similarities in effects of salt stress on shoot morphology with those of other adverse environmental conditions are discussed.

Keywords:

Environmental stress, Heading, Morphogenesis, Rice, Salinity, Tiller, Young panicle formation

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