TOLERANSI VARIETAS PADI TERHADAP SALINITAS PADA FASE PERKECAMBAHAN[1)]

(SALT TOLERANCE OF RICE VARIETIES DURING GERMINATION)

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Abstract: Salt tolerance of rice plant (*Oryza sativa* L.) varies among varieties as well as among growth stages. Laboratory and greenhouse experiments were conducted to study the varietal tolerance during the germination and the seedling stages. The seeds of PB 28 and PB 32, susceptible and tolerant varieties, respectively, were germinated in petridishes with filter paper saturated with 0, 0.25, 0.50, 1.00, 2.00, and 4.00 % (W/V) NaCl. The germinating seeds were transplanted to soil culture salinized with 0.30 % NaCl. The seeds unable to germinate in 10 days were throughly washed to remove the NaCl and then were germinated in petridishes with filter paper saturated with water.

High concentrations of NaCl reduced both the germination rate and the number of germinating seeds. Low concentrations, however, only reduced the germination rate. Not all of the nongerminating seeds could germinate after the washing, indicating a toxic effect of NaCl.

Salt concentration did not affect water absorption during the first two days, but decreased the absorption thereafter. Water absorption was significantly correlated ($P < 0.01$) with the salt concentration ($r = -0.8782$), the rate of germination ($r = 0.9476$), and the number of germinating seeds ($r = 0.8669$).

It was not possible to detect significant varietal differences in salt tolerance based on the number of germinating seeds, germination rate, water absorption, dry weight of three-week-old seedlings, or the surviving seedling percentage. Significant differences ($P < 0.05$) were observed between the two varieties based on the percentage of seeds that germinated on water-saturated paper following the 10-day salt treatment. The screening of breeding material for salt tolerance can be done during germination, i.e. treating the seeds with 2.00 % NaCl for 10 days, and then determining percentage germination on water-saturated paper. However, further experiments should be conducted to verify the finding.

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