

Studies on seed germination and growth in weed species of rice field under salinity stress.

ABSTRACT

An investigation was made to see the salt tolerance of 10 weed species of rice. Properly dried and treated seeds of weed species were placed on 9 cm diameter petridishes lined with Whatman No. 1 filter paper under 6 salinity regimes, viz. 0 (control), 4, 8, 16, 24 and 32 dS m⁻¹. The petri dishes were then kept in germinator at 25±1.0oC and 12 hr light. The number of germinated seeds were recorded daily. The final germination percentage, germination index (GI), seedling vigour index, mean germination time and time for 50% germination were estimated. Root and shoot lengths of the weed seedlings were measured at 20 days after salt application and relative growth values were calculated. Results revealed that salinity decreased final germination percentage, seed of germination as measured by GI, and shoot and root length in all the species. Germination of most of the weed seeds was completely arrested (0) at 32 dS m⁻¹ salinity except in *E. colona* (12%) and *C. iria* (13.9%). The species *C. iria*, *E. colona*, *J. linifolia* and *E. crusgalli* showed better germination (above 30%) upto 24 dS m⁻¹ salinity level and were regarded as salt-tolerant weed species. *J. linifolia*, *F. miliacea*, *L. chinensis* and *O. sativa* L. (weedy rice) were graded as moderately tolerant and *S. zeylanica*, *S. grosus* and *C. difformis* were regarded as least tolerant weed species.

Keyword: Rice-field weeds; Weed seed germination; Seedling growth; Germination index; Salinity stress.