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EFFECT OF AMMONIUM SULPHATE, UREA, AMMONIUM CARBONATE AND SODIUM CHLORIDE ON GERMINATION OF RICE SEEDS AND ON SEEDLING GROWTH

Indrani Maldeniya and Mervyn W. Thenabadu

(Faculty of Agriculture, University of Sri Lanka, Peradeniya Campus).

Effects of ammonium sulphate and urea, on the germination of several varieties of rice seed were tested in solutions ranging from 0.01M to 0.08M. Distilled water was used as the control.

Percentage germination generally was less in urea than in ammonium sulphate of the same concentration. Germination decreased with increasing concentration of urea. Pokkali had the highest percent germination while A 15-100 had the lowest.

With increasing concentration of urea percentage germination of varieties A 15-100 and A 16-14 decreased rapidly and there was no germination in solutions stronger than 0.04M. Further, seedling vigour degenerated with increasing concentration up to 0.04M. The varieties Bg 34-6 and Bg 3-5 did not germinate in 0.05M and 0.06M solutions respectively. All other varieties tested ceased to germinate at concentrations above 0.07M; and seedling vigour gradually declined up to this concentration.

In ammonium sulphate solutions too percentage germination of varieties A 15-100 and A 16-14 was less compared to the other varieties. However, unlike the urea there was no complete lack of germination in any ammonium sulphate solutions tested. Pokkali showed one hundred percent germination even in the highest concentration (0.08M) and A 15-100 showed the lowest.

Toxicity symptoms and death was high in seedling in ammonium carbonate solutions and low in ammonium sulphate. Sodium chloride solutions showed little adverse effects in seedling growth, except a slight wilting exhibited by Mashuri in solutions of 0.04M and higher.

These results are discussed in the light of practical problems in fertilizer applications.