



Soaking seeds in potassium nitrate solutions were effective priming treatments

The study consisted of three experiments and was conducted to evaluate the effect of elevated temperatures and varying concentrations of potassium nitrate (KNO_3) and gibberellic acid (GA_3) on germination of Papaya (

Carica papaya

L.) seeds. For all experiments, seeds of cultivar 'Kapoho Solo' were planted 0,5 cm deep in plastic pots containing moistened No. 2 grade vermiculite. All experiments were arranged as randomized complete block designs and consisted of 4 replications of 50 seeds/replication.

In the first experiment seeds were soaked in aqueous solutions of GA_3 at 0,0; 0,6; 1,2; or 1,8 mM, or in KNO_3 at 0, 0,5 or 1,0 M for 15 min prior to sowing. After priming the seeds were sown into pots and were placed either on heated ($35 \pm 5^\circ\text{C}$) or non-heated ($25 \pm 5^\circ\text{C}$) benches in a fiberglass greenhouse. Seeds soaked in KNO_3 or GA_3 for 15 minutes exhibited an increased percentage emergence and a reduced time for 50% seedling emergence in comparison to seeds soaked in water. Increasing the KNO_3 concentration from 0 to 1,0 M increased percentage seedling emergence. Seeds treated with KNO_3 had a higher overall percentage seedling emergence than GA_3 treatments at both temperatures.

In the second experiment seeds were soaked in distilled water, in 1,0 M solutions of KNO_3 , CaNO_3 , KCl or CaCl_2 for 15 minutes. The seeds were planted and grown on non-heated ($25 \pm 5^\circ\text{C}$) benches under greenhouse conditions. Potassium nitrate treatment had the highest percentage seedling emergence and shortest time to 50% seedling emergence (Table 1). Soaking seeds in KNO_3 or GA_3 before or after drying for 2 weeks



in the third experiment did not alter the effects of KNO_3 or GA_3 .

Table 1. The effect of soaking papaya seeds for 15 minutes in chemical solutions (treatments) on seedling emergence of papaya seeds.

Treatment	Seedling emergence (%)	Days to 50% emergence
1,0 M KNO_3	77	15,8
1,0 M CaNO_3	73	18,6
1,0 M KCl	34	23,4
1,0 M CaCl_2	10	39,0
Water (control)	7	28,4
LSD (P=0,05)	11	5,1