Potassium nitrate enhanced dormancy breaking and seed germination of papaya seeds

The objectives of this study were:

1) to investigate and enhance seed germination in two commercially grown papaya genotypes (“Solo” and “007”) of importance in Queensland, Australia.

2) to study the effects of potassium nitrate on breaking dormancy and improving germination of fresh seed pre-storage.

Seeds were pre-soaked in aqueous solutions of potassium nitrate at a range of concentrations (0; 0,25; 0,5; 1,0; 1,5 M) for 0, 15, 30, 60 min, 2, 3, 6, 14 or 24 h prior to germination testing.

The mean percentage of germination increased above control levels for both varieties after pre-treatment in either 0,25M or 0,5M potassium nitrate. The highest mean percentage of germination was seen after pre-treatment at 0,25M potassium nitrate for 2 or 3 h (64% and 65% for “Solo”, 58% and 64% for “007”, Figure 1). Dormancy in fresh seeds of papaya cultivars when freshly harvested, could be broken to give acceptable levels of germination when potassium nitrate was used; potassium nitrate gave the highest levels of germination for “007” seeds and may be the preferred treatment for application in papaya.

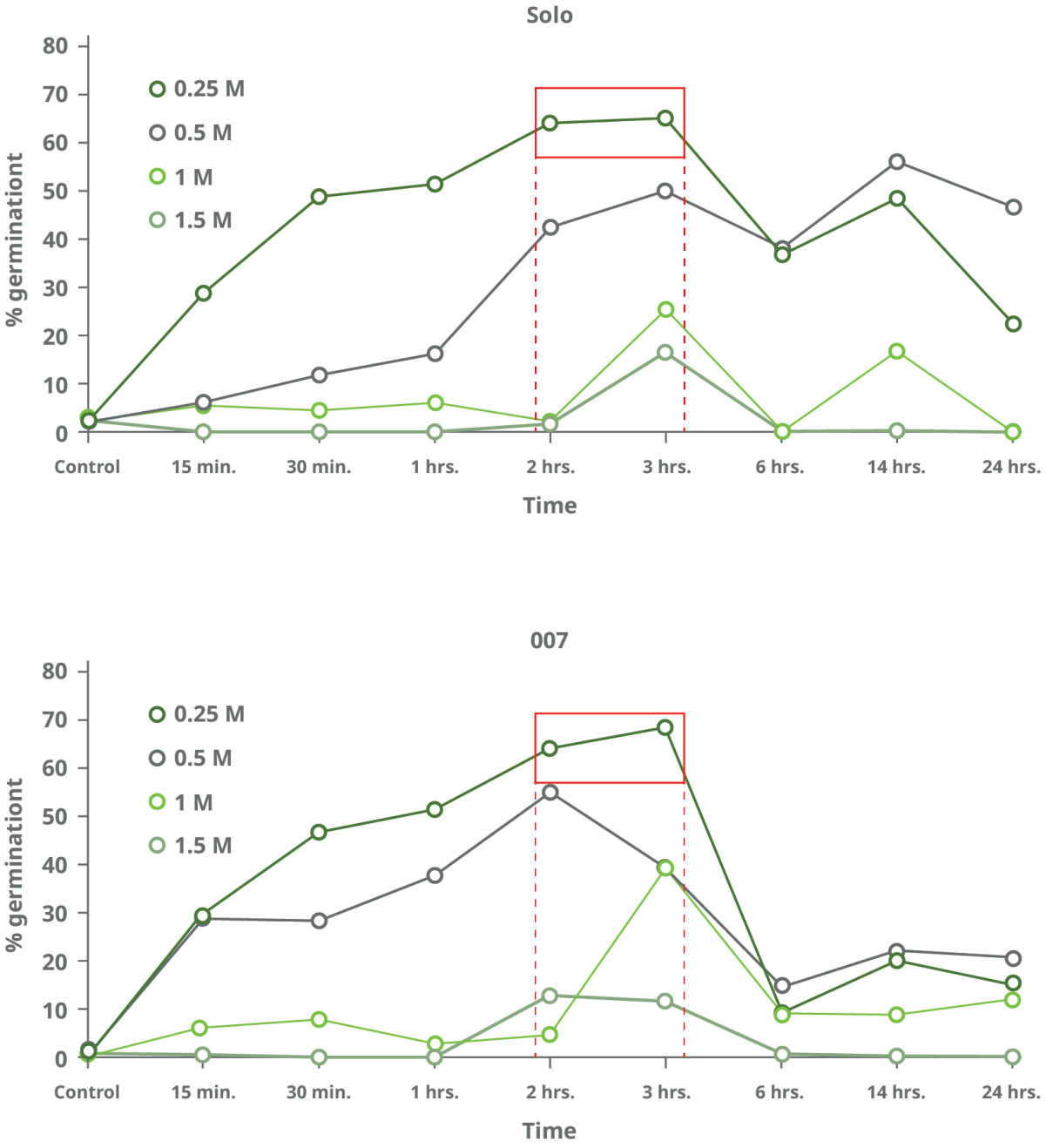

Figure 1. Mean percentages of germination of fresh seeds of Solo and 007 varieties of *Carica papaya* after pre-treatment for various times in a range of concentrations of KNO_3. Each data point is the mean of 10 replicates of 25 seeds. Error bars are standard errors of the

means (SEM).