

Effects of temperature treatment on seed germination, root development and seedling growth of *Citrullus lanatus* (watermelon)

ABSTRACT

The objective of the present study is to investigate the effects of temperature on the seed germination, root development and seedling growth of watermelon. Yellow flesh watermelon seeds were incubated with control (normal temperature 25°C, 20°C, 30°C, 35°C and 40°C under lab condition. This experiment was carried out with Completely Randomized Design (CRD) with five treatments and each treatment consists of five replications. The morphological and physiological parameters were measured once a week for five weeks during the germination and early seedling establishment. The results showed that seed treated under 35°C treatment produced the best results for the days require to germination, germination percentage, root development, vine and root length, leaf expansion and seedling growth of watermelon. In addition, chlorophyll content, carotenoid content, chlorophyll fluorescence, photosynthetic yield and stomatal conductance also affected positively with the temperature treatments. Fresh and dry biomass accumulation in the seedlings of watermelon was also the highest in 35°C treatment. It can be concluded that seeds incubated with 35°C during the germination increased the germination rate, root development and seedlings growth of watermelon.