Abstract

Rooted liners of pot rose (*Rosa* L.) cultivars Meiferjac, Meigagul, Meighivon, Meishulo, Ruijef and Ruidodo were used to study the influence of cultivar and seasonal growing environment on growth and postharvest performance. Single-stemmed plants were grown in controlled environmental chambers simulating summer (30°C day/21°C night with a 14-hour photoperiod) and winter (21°C day/16°C night with a 10-hour photoperiod) greenhouse growing conditions. At flower developmental stage 2, the plants were placed in a continuously lighted simulated interior evaluation room at 21 ± 1°C under 15 μmol*m -2 s -1 PPFD from cool-white fluorescent lamps for postharvest evaluations. Plants had longer flower longevity, quicker flowering, smaller flower diameter, more compact growth, and smaller leaf area when plants were grown under the summer environment compared to the winter environment. Stem carbohydrate concentration showed a direct relation with flowering shoot length. Meiferjac and Ruijef cultivars exhibited higher flower longevity under summer environment vs. winter environment, and Ruirosora cultivar exhibited similar flower longevity under both environments. The ribose content in leaf tissue exhibited the same pattern of differences seen for flower longevity between the growing environments. The greater flower longevity under the summer environment vs. the winter for Meiferjac and Ruijef cultivars may be explained by the lower flower respiration rates and the higher petal starch concentration for plants grown under the summer environment. The photosynthetic assimilation rates and dark respiration were higher under the winter growing environment when compared to summer.

In another group of experiments, pot rose cultivars Meiferjac, Meifruije, Meigagul, Meighivon, Meishulo, Ruijef, Ruidodo and Ruirosora were grown using a short-cycle production schedule in the greenhouse. Paclobutrazol was sprayed at 0, 25, 50, 100 and 200 mg*L $^{-1}$ active ingredient. At harvest, plants were placed in the postharvest evaluation room. As paclobutrazol dosage increased, whole-pot postharvest longevity, flower longevity and plant height decreased in a linear manner. The application of gibberellic acid at the end of production did not reverse the decrease of flower longevity and whole-pot postharvest longevity due to paclobutrazol application.