three replications was used. The measurements were taken at the end of the experiment. Growth parameters (plant height, number of leaves per plant, fresh matter accumulation), stomata conductance and chlorophyll content (SPAD) decreased under water deficit (50% Hcc). Increase in water stress increased the soluble solids and proline content. It is concluded that water stress significantly ($p<0.05$) affects physiological and morphological characteristics of citrus rootstocks and under extreme water deficit (50% Hcc) the different responses are evident among the citrumelo rootstocks.

S08P13

The effect of water stress on ABA, JA and physiological characteristic of citrus

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Citrus is one of the most popular fruit tree crop in China, the main production area is located in south China where rainfall is uneven distributed in different seasons; thus, the seasonal drought is the main environmental stress that affects yield and quality of citrus fruits. Two-year-old 'Newhall' orange (*Citrus sinensis*) and 'Yamasitaka' (*Citrus unshiu*) seedlings were transplanted into pots containing 2 Lof dried mix-soil. Thirty days after transplanting, plants were subjected to water-deficit stress by withholding water to four different levels: control (CK, well-watered plants) and plants watered to achieve soil water contents that were 21 %, 14% and 7% the CK content. Levels of abscisic acid (ABA) and jasmonic acid (JA) were significantly affected by water stress in 'Yamasitaka' and 'Newhall' orange plants. The content of ABA in 'Newhall' orange was 5.9 ng/g, 7.2 ng/g, 9.3 ng/g and 13.7 ng/g under CK, 21%, 14% and 7% soil water treatment respectively. Under CK conditions, the ABA content was 7.1 ng/g in 'Yamasitaka' and there were no significant differences among CK, 21% and 14% water-stress treatments; however, the ABA content increased to 10.4 ng/g under the 7% water-stress treatment. The content of JA in 'Newhall' orange was 2.2 ng/g, 2.3 ng/g, 3.5 ng/g and 6.7 ng/g under CK, 21%, 14% and 7% soil water content respectively. There was a similar trend of JA content in' Yamasitaka', JA content was 1.3 ng/g, 1.7 ng/g, 2.3 ng/g and 3.6 ng/g under CK, 21%, 14% and 7% soil water treatment respectively. The content of proline was 399.6 µg/g, 525.8 µg/g, 770.5 µg/g and 1004.0 µg/g, under CK, 21%, 14% and 7% soil water treatment respectively in 'Newhall' orange. While content of proline in 'Yamasitaka' was 714.1 µg/g, 1032 µg/g, 1215 µg/g and 1229 µg/g, under CK, 21%, 14% and 7% soil water treatment respectively. Water stress could induce reductive sugar accumulation in both two cultivars, the content of reductive sugar reach its maximum under 7% soil water treatment.

S08P14

Physiological responses of diploid and doubled diploid 'Rangpur' lime and 'Carrizo' citrange under water deficit

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In citrus, the use of rootstocks promotes productivity, improves fruit quality and may confer resistance or tolerance to biotic and abiotic stress. 'Rangpur' lime (*Citrus limonia*) is one of the most tolerant rootstock to drought and is largely used by the Brazilian citrus industry. In contrast, 'Carrizo' citrange (*Citrus sinensis* × *Poncirus trifoliata*), which is one of the most popular rootstocks in the Mediterranean basin, is sensitive to drought and salt stress but confers tolerance to Citrus Tristeza Virus, and also promotes very good fruit quality. Previous studies have shown that citrus doubled diploid (4x) seedlings are more tolerant to salinity than their respective diploid (2x). In the present study, we characterized the water deficit tolerance in 2x and 4x 'Rangpur' lime and 'Carrizo' citrange seedlings. Water deficit was applied respectively for 25 and 35 days, followed by recovery irrigation. Several physiological and biochemical parameters were measured periodically during the experiment and samples were collected for molecular analysis. Doubled diploid seedlings were more drought tolerant than 2x in both genotypes. Water deficit caused a greater reduction in photosynthetic rates and stomatal conductance in 2x compared to 4x. Biochemical and genes expression analyzes are under way to decipher the mechanisms leading to the better tolerance in 4x seedlings.