RESEARCH ARTICLE

PHYSIOLOGICAL STUDIES OF DIFFERENT CITRUS SPECIES AND THEIR CULTIVARS UNDER SEMI-ARID CONDITIONS OF HISAR, (HARYANA)

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Abstract: The experiment on well-maintained 12 year old trees each of Sweet orange (C*itrus sinensis*(L.)Osbeck) *cv.* Jaffa and Pineapple; Mandarin hybrids Pearl Tangelo *(Citrus reticulata*Blanco *x Citrus paradisi*Macf.) and Kinnow *(Citrus nobilis* Lour. x *Citrus deliciosa*Tenore) and Grapefruit (C*itrus paradisi*Macf.)*cv.*Duncan and Ruby Red was carried out at CCS HAU, Hisar during 2014 and 2015. The relative water contentwere observed 80-90% in almost all cultivars. Cell membrane stability index and potent physiological indices were observed highest in Kinnow. As Kinnow mandarin was found most photo-synthetically efficient mandarin cultivar in fixing more CO_2 among all cultivars and species of citrus. Transpiration rate was recorded highest in sweet orange cv. Pineapple and lowest in grapefruit cv. Duncan. Apparently no marked differences were recorded in stomatal conductance among all citrus species and their cultivars. Leaf water potential in Pineapple and osmotic potential in cv. Ruby Red were greatest.Whereas it was lowest in grapefruit cv. Ruby Red and osmotic potential in sweet orange cv. Jaffa.Spring flush leaves of Kinnow mandarin were behaved most drought tolerant with least cell membrane injury, followed by Ruby Red grapefruit with highest cell membrane stability index.

Keywords: Citrus, Mandarin, Sweet orange, Grapefruit, Cell membrane injury

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