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(*C. olkameriana*)

(*Citrus reticulata* × *C. limetta*)

(*C. aurantifolia*)

(*C. limetta*)

(*C. aurantium*)

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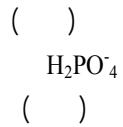
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	/ D	/ C	/ D	/ B	/ A

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/ A	/ de	/ cde	/ bc	/ a	/ a
/ B	/ g	/ ef	/ ef	/ ab	/ cd
/ C	/ hi	/ fg	/ gh	/ c	/ e
/ D	/ i	/ hi	/ gh	/ de	/ g
	/ D	/ C	/ C	A	/ B

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REFERENCES

5. Abd-El Baki, G.K., F. Sieritz, H.M. Man, H. Weiner, R. Kaldenhoff & W.M. Kaiser. 2000. Nitrate reductase in *Zea mays* L. under salinity. *Plant Cell Environ.* 23:515-521.
6. Abdullah, Z. & R. Ahmad. 1990. Effect of pre and post-kinetin treatments on salt tolerance of different potato cultivars growing on saline soils. *J. Agron and Crop Sci.* 165:94-102.
7. Awada, A.S., D.G. Edwards, & L.C. Campbell. 1990. Phosphorus enhancement of salt tolerance of tomato. *Crop Sci.* 30: 123-128.
8. Awada, S., W.F. Campbell, L.M. Dudley, & J.J. Jurinak. 1995. Interactive effects of sodium chloride, sodium sulfate, calcium sulfate and calcium chloride on snapbean growth, photosynthesis and ion uptake. *J. Plant Nutr.* 18:889-900.
9. Behboudian, M.H., E. Torokfalvy & R.R. Walker. 1986. Effects of salinity on ionic content, water relations and gas exchange parameters in some citrus scion-rootstock combinations. *Sci. Hort.* 28:105-116.
10. Cachorro, P., A. Oritiz, & A. Cerda. 1993. Growth, water relations, & solute composition of *Phaseolus vulgaris* L. under saline conditions. *Plant Sci.* 95:23-29.
11. Champagnol, F. 1979. Relationships between phosphate of plants and salt toxicity. *Phosphorus Agri.* 76: 35-43.

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12. Cooper, W.C., B.S. Gorton, & E.O. Olson. 1952. Ionic accumulation in citrus as influenced by rootstock and scion and concentration of salts and boron in the substrate. *Plant Physiol.* 27:191-203.
 13. Embleton, T.W., W.W. Jones, C.K. Labanauskas, & W. Rether. 1973. Leaf analysis as a diagnostic tool& a guide to fertilization. In: Reuther, W. (Ed.), *The Citrus Industry*. Vol. 3. University of California Press, Berkeley, pp. 184-210.
 14. Fernandez-Ballester, G., F. Garcia-Sanchez, A. Cerda & V. Martinez. 2003. Tolerance of citrus rootstock seedlings to saline stress based on their ability to regulate ion uptake and trasport. *Tree Physiol.* 23:265-271.
 15. Garcia-Legaz, M.F., J.M. Ortiz, A.G. Garcia-Lidon &A. Cerda. 1993. Effect of salinity on growth, ion content and CO₂ assimilation rate in lemon varieties on different rootstocks. *Physiol. Plant.* 89:427-432.
 16. Garcia-Sanchez, F., J.L. Jifon, M. Carrajal, & J.P. Syvertsen. 2002. Gas exchange, chlorophyll and nutrient content in relation to Na⁺ & Cl⁻ accumulation in Sunburst mandarin grafted on different rootstocks. *Plant Sci.* 162:705-712.
 17. Graifenberg, A., L. Giustiniani, O. Temperini & M. Lipucci Di Paola. 1995. Allocation of Na, Cl, K & Ca within plant tissues in globe artichoke under saline-sodic conditions. *Sci. Hort.* 63:1-10.
 18. Grattan, S.R. & C.M. Grieve. 1993. Mineral nutrient acquisition and response by plants grown in saline environments. In: Pessarakli, M. (ed.). *Handbook of plant and cold stress*. Pp 203-226.
 19. Grattan, S.R. & C.M. Grieve. 1999. Salinity-mineral nutrient relations in horticultural crops. *Sci. Hort.* 78:127-157.
 20. Gregorio, F.B., M. Vicente, D. Ruiz & A. Cerda. 1998. Changes in inorganic and organic solutes in citrus growing under saline stresses. *J. Plant Nutr.* 21:2497-2514.
 21. Hassan, M.M. & M.A. Galal. 1989. Salt tolerance among some citrus rootstocks. CAB Abst.1992.
 22. Lea-Cox, J.D., & J.P. Syvertsen. 1993. Salinity reduces water use and nitrate-N-use efficiency of citrus. *Annals of Botany.* 72:47-54.
 23. Marschner, H. 1995. *Mineral Nutrition of Higher Plants*. Academic Press, London, p.889.
 24. Maas, E.V. & G.J. Hoffman. 1977. Crop salt tolerance-current assessment. *J. Irrig. Drain. Div. ASCE* 103 (IRZ):115-134.
 25. Maas, E.V. 1993. Salinity and citriculture. *Tree Physiol.* 12:195-216.
 26. Nieves, M., A. Cerda & M. Botella. 1991. Salt tolerance of two-lemon scion measured by leaf chloride and sodium accumulation. *J. Plant Nutr.* 14:623-636.
 27. Orcutt, M.D. & E.T. Nilsen. 2000. *The Physiology of Plants Under Stress: Soil and Biotic Factors*. John Wiley and Sons, New York. p.683.
 28. Papadopoulos, I. & V.V. Rending. 1983. Interactive effects of salinity and N on growth and yield of tomato plants. *Plant Soil*, 73: 47-57.
 29. Robinson, S.P., W.J.S. Downton, & J.A. Millhouse. 1983. Photosynthesis and ion content of leaves and isolated chloroplasts of salt-stressed spinach. *Plant. Physiol.* 73:238-242.
 30. Ruiz, D., V. Martines & A. Cerada. 1997. Citrus response to salinity: Growth and nutrient uptake. *Tree Physiol.* 17:141-150.
 31. Sharply, A.N., J.J. Meisinger, J.F. Power & D.L. Suarez. 1992. Root extraction of nutrients associated with long-term soil management. In : Stewart, B. (Ed.), *Advances in Soil Science*, Vol. 19 : Springer, pp. 151-217.
 32. Walker, R.R. & T.J. Douglas. 1983. Effect of salinity level on uptake and distribution of chloride, sodium and potassium ions in citrus plants. *Aust. J. Agric. Res.* 34:145-153.
 33. Zekri, M. & L.R. Parsons. 1990. Response of split-root sour orange seedlings to NaCl and polyethylene glycol stresses. *J. Exp. Bot.* 41:35-40.
 34. Zekri, M. & L.R. Parsons. 1992. Salinity tolerance of citrus rootstocks: Effect of salt on shoot and root mineral concentrations. *Plant Soil*, 131:1147-151.

