Physiological studies on some shrubs

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5. SUMMARY PHYSIOLOGICAL STUDIES ON SOME SHRUBSThis study was carried out during 97/1998-98/1999 reasons at the experimental farm of the Faculty of Agric. Moshtohor, Zagazig Univ. to study the effect of salinity and some chemical materials (PP333, kinetin and/or (super grow) complete fertilizer on vegetative growth, roots, flowering and chemical content of Adhatoda vasica, Hibiscus rosa sinensis and phyllanthus emblica grown undersaline conditions used at four levels of NaCI; zero, 3000, 5000 and 7000 mg L-' withinPP333 at 0, 50 and 100 mg U' or kinetin at 0, 100 and 200 mg U' orsupergrow at 0, 2, 3 and 5g/L. Treatments were arranged in split plot design. The obtained results can be summarized in the following :1.2. Adhatoda and Hibiscus shrubs :1.Effect of salinity : Vegetative growth characteristics as; plant height, root length, number of leaves, fresh and dry wt., number and dry weight of roots and chemical content were gradually decreased by increasing levels of salinity while number flowers was increased by increasing salinity levels especially at 7000 mg U' which gave the lowest values of veg. growth, roots and chemical content of Adhatoda or Hibiscus.2.Effect of PP333 within salinity : Usage of PP333 improved vegetative growth, roots and chemical content and gradually increased all characteristics. PP333 at 100 mg L-1 within 5000 mg U' salinitywere more tolerance than the other levels.3.Effect of salinity within kinetin : Using kinetin led to increasing vegetative growth, roots and chemical content of adhatoda or Hibiscus. The best concentrationwas S2 K2 (5000 or 7000 mg L-' ofsalinity with 200 mg L"' kinetin).4.Effect of salinity with supergrow : Usage of supergrow increased growth, roots and chemical content, and reduced the bad effect of salinity and gave results significantly higher hen PP333 or kinetin. The best results were SI F3 or S2 F3 (3000, 5000 mg L-1 of salinity with 5 g/L) of supergrow.5.Addition of PP333 led to increases in vegetative growth,roots and chemical content of adhatoda the best values were at 100 mg 1_,"' of PP333•6.Addition of kinetin led to increases in growth, roots andchemical content of adhatoda plant. The best values were at 200 mg L"' ofkinetin.7.Using of supergrow led to the highest values of all characteristics of growth, roots and chemical content.This highest results were obtained at 5g/L of supergrow.Generally, it may be concluded that irrigating adhatoda or Hibiscus with saline water up to 5000, 7000 mg L-INaC1 can be safely used. This must be accompanied by spraying this ornamental shrubs with PP333 at 100 mg L-1 or kinetin at 200 mg L"' or nutrition spray with supergrow at 5g/L to produceacceptable shrubs as well as minimizing the deleterious effect of salinity stress.3. Phyllanthus plant :1.Effect of salinity : Increasing salinity levels decreased greatly and steadily vegetative growth, roots and chemical content of phyllanthus plant. 5000, 7000 mg 1_,-1 of salinity gave the worst result of salinity.2.Effect of PP333 within salinity : Usage of PP333 slightly improved vegetative growth, roots and chemical content of phyllanthus. PP333 at 100 mg Li within 3000 mg L-1 of salinity was the best treatment.3.Effect of salinity within kinetin : Using kinetin led to increase growth, roots and chemical content of phyllanthus. The best concentration was S, K, (3000 mg L-1 salinity within 200 mg Ul kinetin).4.Effect of salinity within supergrow : Usage of supergrow increased vegetative growth roots and chemical content. The best results was S, F3 (3000 mg U' ofsalinity within 5g/L supergrow).5.Addition of PP333 increased vegetative growth, roots and chemical content especially at 100 mg L-1 PP333.6.Addition of kinetin increased growth, roots and chemical content. The best level was at 200 mg L-1 of kinetin.7.Using supergrow at a rate of 5 mg L-1 led to the highest value of all characteristics.Generally, it may be concluded that irrigatingphyllanthus with saline water up to 3000 mg U1NaC1 can be safely used. This must be accompanied by spraying this plant with PP333

at 100 mg U’ orkinetin at 200 mg U’ orsupergrow at 5g/L to produce acceptable shrubs as well as minimizing thedeleterious effect of salinity stress. Phyllanthus was less tolerance and more effected with salinity stress as compared with adhatoda or hibiscus. Adhatoda was the best in tolerance shrub and supergrow was the best chemical material.