International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.9, No.05 pp 161-171, 2016

Study on the Effect of Pre-harvest Treatments by Seaweed Extract and Amino Acids on Anna Apple Growth, Leaf Mineral Content, Yield, Fruit Quality at Harvest and Storability

[1]*Thanaa Sh. M., [2] Fatma K. M. Shaaban, [3]Morsey M. M. and [3]El-Nagger Y. I.

[1]Department of Horticultural Crops Technology, National Research Center, Dokki, Giza, Egypt.
[2]Fruit Handling Res.Dept.,[3] Deciduous Fruit Res. Dept., Hort. Res. Inst. Agric. Res. Cen., Giza, Egypt.

Abstract : Seaweed extract (*Ascophylum nodosum* L.) and amino acids were studied as a foliar applications on the growth, leaf mineral content, fruit set, yield, fruit quality and storability of apple cv. ''Anna'' under cold storage conditions.

Anna apple trees treated with mixture of seaweed extract (2 ml L^{-1}) plus amino acids (0.5 ml L^{-1}) exhibited significantly higher shoot length, leaf area, number of leaves per shoot, chlorophyll, N, K, Fe, Mn and Zn content of leaves with no significant change in P content. Seaweed extract (2 ml L^{-1}) either alone or combined with amino acids (0.5 ml L^{-1}) increased significantly fruit setting and yield. Anna fruits lightness, hue angle, fruit texture, weight loss percentage and soluble solid content were significantly affected by different treatments, while titratable acidity % was not significantly influenced. At the end of storage period the mixture application of seaweed extract (2 ml L^{-1}) + amino acids (0.5 ml L^{-1}) gave the highest values of lightness , fruit texture, soluble solid content and lowest value of hue angle (high density of red color), weight loss percentage and titratable acidity %.

In brief, pre-harvest sprays by mixture of seaweed extract (2 ml L^{-1}) + amino acids (0.5 ml L^{-1}) is highly effective to "Anna" apples for enhancing growth, leaf mineral content, fruit set, yield, fruit quality at harvest and storability under cold storage conditions.

Keywords: Apple, Anna, Seaweed extract, Amino acids, Cold storage, Yield, Fruit quality and Storability.

*****