



Role of Silicon in Fruit Crops- A Review

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Abstract

Silicon is one of the important plant element which is having a great effect on plant growth and development. Si is consider as 2nd richest element present in the earth surface and soil. The availability of Si in soil is greatly varies from <1 to 45% by dry weight. Due to continuous cultivation and use of chemical fertilizers causes depletion of silicon content in soil. Plant uptake silicon in the form of monosilicic acid which enhances cell wall division as well as production of photosynthetic products. In different crops silicon plays important role in development of resistance against biotic and abiotic stresses. Higher concentration of silicon has no detrimental effect of plant growth. Apart from this presence of Si enhances uptake of nutrients and water from soils, increases yield and quality, reduces transpiration loss. Quality of the produce can be enhanced by checking post-harvest physiological activities in the presence of silicon by reducing respiration rate and ethylene production. Also, foliar application of silicon at pre and post flowering stages causes production of quality fruits and increases crop yield.

Keywords: Silicon, monosilicic acid, biotic stress, abiotic stress, quality production

Various studies carried out to find out effect of silicon on plants since decades still its ability is in doubt. According to Cai and Quien, (1995) advantageous effect of silicon has been found in different plants and its positive response towards plant growth too. It is the 2nd richest elements present in soil and earth surface (Laing *et al.* 2007). Silicon is the eight most abundant elements in planet and vary greatly on soil and ranges from <1 to 45% by dry weight (Sommer *et al.* 2006). There is deficiency of Si found in soil due to continuous cultivation of and use of inorganic manures which become constrain for crop cultivation. Despite of non-recognition of Si as an important element still it has advantageous results on plant growth and development as well as developing

stress resistance in plans resulting in higher crop yield.

As reported by Ma and Yamaji (2006) silicon is present in soil in form of silicic acid ranging from 0.1 to 0.6 mM and plants uptake Si in the form of monosilicic acid. Silicon is uptake by plants through roots and stored in cell walls and other parts of plant cells. In different crops Si is responsible for fight against various biotic as well as abiotic stresses. Fautaux *et al.* (2005) suggested that presence of higher concentration of silicon has no detrimental effect on

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