Stimulation of plant growth by humic substances. (S03-clapp125043-Poster)

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Abstract:

Studies on the effects of humic substances (HS) on plants consistently show stimulation of plant growth. Both increase in root length and development of secondary roots have been observed for HS in nutrient solutions. Some researchers attributed the stimulative effects of HS to higher uptake of nutrients. Others, however, suggested that hormone activity of HS promotes plant growth. A small fraction of lower molecular weight components of HS can be taken up by plants and are considered to increase cell membrane permeability and to exhibit hormone-like activity. In soils, addition of composts was found to stimulate growth beyond that provided by mineral nutrients, presumably because of the effects of HS. Experiments were carried out using a 'microsystem' method and a 'pouch' method comparing HS products with fertilizer controls for plant growth parameters. Plants involved included turfgrasses, corn, soybean, and tomato (some genetically modified). The results will be discussed, in light of supporting literature data, showing that plant growth enhancement results from increased nutrient availability, iron and zinc in particular, due to their chelation by HS.

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