

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Local environment of iron in garden soil Vs Plants**<sup>1</sup> SUNIL DEHIPAWALA, CHAOJUNG DONG, STEPHEN SMITH, PATRICIA SCHNEIDER, Queensborough Community College of CUNY, HARRY GAFNEY, Queens College of CUNY — Iron is an essential nutrient not only for humans, but also for all types of plants. Plants use iron for chlorophyll formation, RNA metabolism, and transpiration process regulation. Iron is one of the most abundant metals in the soil and occurs in a wide range of chemical forms. The correlation between the iron species presents in soil and in *Petroselinum crispum* (parsley) plants were investigated using the room temperature Mossbauer spectroscopy. Mossbauer spectrum of garden soil consists of two doublets. Based on the established isomer shift and quadrupole splitting values of iron, these doublets can be identified as due to octahedrally coordinated  $\text{Fe}^{3+}$  and tetrahedrally coordinated  $\text{Fe}^{2+}$ . Most of the iron present in the parsley has the form  $\text{Fe}^{3+}$  or electron density at the site of the iron nucleus similar to that of  $\text{Fe}^{3+}$ . These findings will help establish soil conditions necessary to increase  $\text{Fe}^{2+}$  intake by plants similar to the form of iron present in most supplements.

<sup>1</sup>Sunil Dehipawala acknowledges financial support provided by PSC-CUNY.

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Date submitted: 09 Nov 2014

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