The effect of the bacteriacide, Micropur, on phytosiderophore release and K+ leakage from roots of iron-stressed maize. (S04-stanger155624-Poster)

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Abstract:

Phytosiderophore released from Fe-stressed maize (Zea mays L.) roots solubilizes Fe but is degraded by microbes. Micropur controls bacterial growth but may damage root membranes. In studies where consecutive 4-h collections over 24-h periods were taken from the same plant, release declined sharply during later collections. In contrast, when measured using different plants in each 4-h collection period, release was consistently high. The decline when using the same plant could be due to root damage or to phytosiderophore-mediated acquisition of Fe from the apoplast. The impact of Micropur on root membranes of stressed and unstressed maize was studied by measuring phytosiderophore and K+ release from roots in solutions with and without Micropur. Roots in solutions containing Micropur leaked three times more K+ than roots in solutions without Micropur. However, release of K+ was not consistently associated with release of phytosiderophore. Roots of Fe-stressed and non-stressed plants leaked equivalent amounts of K+. Changes in root Fe concentration during collection suggest the decline in release may be due to phytosiderophore-mediated acquisition of Fe during collection.

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