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The role of arbuscular fungi on crop quality

Nasir S A Malik, Alberto Nunez, Lindsay and L Rogers
United States Department of Agriculture, USA

It is well known that *mycorrhizal* symbiosis can improve plant growth and productivity under limited supply of phosphorus, water, or other nutrients. We have started studies to investigate if the *mycorrhizal* symbiosis would also affect food quality by changing the levels of polyphenols/flavonoid in different plant species. In addition, we are examining changes in polyphenol levels of a cultivar when inoculated with different species a plant. Using UHPLC/UV-MS, our initial studies, with leeks have identified 8 species of kaempferol glycosides in the leek shoots. In addition to different numbers of hexose residues attached to kaempferol, we also identified hexuronic acid, malonyl, feruloyl, coumaroylmoiets attached to agylcone. Of these flavonoids, five occurred in significantly higher amounts in *mycorrhizal* plants compared to control. The levels of two flavonoid species were found lower, and one unchanged, in *mycorrhizal* plants compared to controls. It was interesting to note that some of these flavonoid glycosides increased substantially even in the presence of full nutrient supply under which condition there was no overall increase in plant growth of the *mycorrhizal* plants compared to controls. Thus indicating the direct involvement of mycorrhizae in plant secondary metabolism Changes in polyphenol levels in mycorrhizal lettuce, corn, peppers, and tomato are being investigated and will be presented at the meeting.

Biography

Nasir S A Malik completed his PhD on Plant Physiology in the year 1973 at Glasgow University, UK. Currently, he is the Research Plant Physiologist at the United States Department of Agriculture, USA.

nasir.malik@ars.usda.gov

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