

Mineral Uptake and Primary Metabolism in the Leaves and Roots of Bell Pepper (Capsicum annunm. L) Affected by Macro Mineral Nutrient Deficiency

다량원소 결핍에 따른 단고추의 무기양분 흡수양상과 대사체 프로파일링

저자 (Authors)	Yejin Lee, Seulbi Lee, Yangmin X. Kim, Yoeun Kim, Hyejung Kim, Deogbae Lee, Jwakyung Sung
출처 (Source)	한국토양비료학회 학술발표회 초록집 , 2019.8, 107-107(1 pages)
발행처 (Publisher)	한국토양비료학회 Korean Society Of Soil Sciences And Fertilizer
URL	http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE08770676
APA Style	Yejin Lee, Seulbi Lee, Yangmin X. Kim, Yoeun Kim, Hyejung Kim, Deogbae Lee, Jwakyung Sung (2019). Mineral Uptake and Primary Metabolism in the Leaves and Roots of Bell Pepper (Capsicum annunm. L) Affected by Macro Mineral Nutrient Deficiency. 한국토양비료학회 학술발표회 초록집, 107-107
이용정보 (Accessed)	이화여자대학교 203.255.***.68 2020/05/18 03:58 (KST)

저작권 안내

DBpia에서 제공되는 모든 저작물의 저작권은 원저작자에게 있으며, 누리미디어는 각 저작물의 내용을 보증하거나 책임을 지지 않습니다. 그리고 DBpia에서 제공되는 저작물은 DBpia와 구독계약을 체결한 기관소속 이용자 혹은 해당 저작물의 개별 구매자가 비영리적으로만 이용할 수 있습니다. 그러므로 이에 위반하여 DBpia에서 제공되는 저작물을 복제, 전송 등의 방법으로 무단 이용하는 경우 관련 법령에 따라 민, 형사상의 책임을 질 수 있습니다.

Copyright Information

Copyright of all literary works provided by DBpia belongs to the copyright holder(s) and Nurimedia does not guarantee contents of the literary work or assume responsibility for the same. In addition, the literary works provided by DBpia may only be used by the users affiliated to the institutions which executed a subscription agreement with DBpia or the individual purchasers of the literary work(s) for non-commercial purposes. Therefore, any person who illegally uses the literary works provided by DBpia by means of reproduction or transmission shall assume civil and criminal responsibility according to applicable laws and regulations.

Mineral Uptake and Primary Metabolism in the Leaves and Roots of Bell Pepper (*Capsicum annuum* L.) Affected by Macro Mineral Nutrient Deficiency

다량원소 결핍에 따른 단고추의 무기양분 흡수양상과 대사체 프로파일링

Yejin Lee*, Seulbi Lee, Yangmin X. Kim, Yoeun Kim, Hyejung Kim, Deogbae Lee, and Jwakyung Sung¹

이예진*, 이슬비, 김양민, 김여은, 김혜정, 이덕배, 성좌경¹

Soil and Fertilizer Division, National Institute of Agricultural Sciences

¹Department of Crop Science, Chungbuk National University

국립농업과학원 토양비료과, ¹충북대학교

In case any one of macronutrients is not sufficient for plant growth and development, most of plants are encountered with unfavorable metabolism, subsequently affecting plant growth, yields and nutritional quality as well as pathogen and pest resistance. We focus on depicting mineral-specific variations in mineral nutrients and metabolites, and discuss the results within the context of current models of the effects of various macronutrients on primary metabolism, as well as the implications of our results for mineral nutrient management. In leaves, N and S deficiency did not affect P uptake, P deficiency did not influence the concentration of N and cations (K, Ca and Mg), and the starvation of cations just showed the small effect on N and P accumulation. These cause-and-effect relationships between nutrients represented somewhat different tendency in roots. The relative levels of soluble sugars in the leaves represented a tendency of noticeable increase except for -P, and were the highest in -K, and followed by -Ca, -N, and -Mg. A striking interest was observed in two major amino acids, glutamine and asparagine, which revealed a huge increase (more than 10.0 times) by -K, -Mg and -S in the leaves and -P, -Ca, -Mg and -S in the roots.

Keywords: Bell pepper, Macro mineral deficiency, Mineral-mineral interaction, C-N metabolism

Correspondence: leeyj418@korea.kr (063-238-2446)

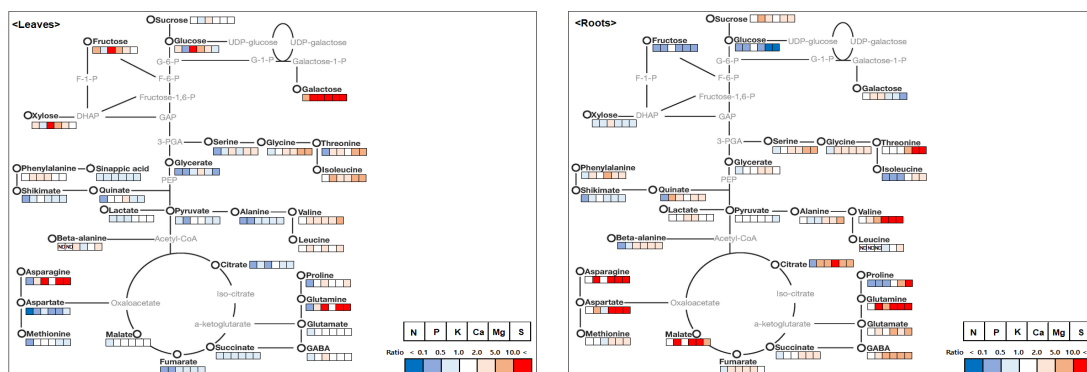


Fig. 1. Changes in primary metabolism in bell pepper growing under macronutrients-free conditions for 15 days. Polar metabolites were measured and profiled by GC-TOFMS after MeOH:H₂O:chloroform extraction.