



Foliar magnesium application enhanced growth and root exudation from wheat in acid soil

Mohammad Golam Kibria

University of Western Australia, Perth, Australia

Abstract

Soil acidity is one of the most important soil constraints for wheat growth, and magnesium (Mg) can play a critical role in mitigating the adverse effects of soil acidity on plants. There is, however, the limited information available about the influence of Mg nutrition, especially foliar application, on wheat growth in acidic soil. In a series of glasshouse experiments, the growth of two wheat genotypes differing in aluminium (Al) resistance was investigated with or without foliar Mg application. Applying Mg to foliage at the optimum rate (200 mg Mg/L) was associated with a significant increase in shoot and root dry biomass accumulation, root length and leaf chlorophyll content by 50%, 38%, and 10%, respectively compared to the treatment with no foliar Mg applied. This increase was higher in the Al-resistant wheat genotype compared with Al-sensitive one. Foliar Mg application at an optimum rate resulted in a significant increase in root exudation (malate and citrate), which contributes to enhancing wheat growth in acidic soil. The root exudation was higher in the Al-resistant wheat genotype compared to Al-sensitive one. It appears that growing Al-resistant genotype coupled with foliar Mg application at the optimum rate might be helpful to minimize the adverse effect of soil acidity on wheat growth.



of the Department of Soil Science at Bangladesh Agricultural University, a leading agricultural university in Bangladesh. He has already published 11 papers in national and international journals and two book chapters. Currently, his research mainly focuses on plant nutrition, problem soil management, and plant stress physiology.

Speaker Publications:

1. Mitigation of the adverse effects of soil salinity in rice using exogenous proline and organic manure, Asian Journal of Medical and Biological Research, DOI: 10.3329/ajmbr.v1i3.26465.



[8th Global Summit on Plant Science](#) Webinar- September 25-26, 2020

Abstract Citation:

Mohammad Golam Kibria, Foliar magnesium application enhanced growth and root exudation from wheat in acid soil, Plant Science 2020: 8th Global Summit on Plant Science Webinar- September 25-26, 2020.

<https://europe.plantscienceconferences.com/abstract/2020/foliar-magnesium-application-enhanced-growth-and-root-exudation-from-wheat-in-acid-soil>

Biography:

Mohammad Golam Kibria has completed his Bachelor and MSc with a Gold medal from Bangladesh Agricultural University. He started his Ph.D. in soil science and plant nutrition at The University of Western Australia from October 2017, and now he is in the final year of his Ph.D. He is the staff