

Investigating Seed Mineral Composition of Korean Landrace Corns (*Zea Mays* L.)

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Maize is used for various purposes, such as food, feed, and industrial materials. Maize kernel is one of the greatest agricultural products in the world and the second-most-produced cereal crop in the Korean peninsula after rice, which is 27.8% of the rice production in weight. Manipulating the chemical composition of maize seeds has huge impacts on its nutritional and industrial value. As a staple food, maize is also used for mineral biofortification to solve mineral malnutrition problems from which over two billion people suffer. Mineral composition profiling of maize germplasms and understating the capacity of the mineral content are prerequisites for manipulating maize mineral composition. Twelve minerals were quantified by using inductively coupled plasma absorption emission spectrometry from 47 maize germplasms including 25 Korean landraces. The amount of K, P, and S showed correlations to the seed texture phenotype, whereby waxy corns had higher amounts of P and K than dent corns and lower amounts of S than flint or dent corns. Strong positive relationships were detected between the amount of P and those of K, Mg, and Mn. These results provide information on maize seed mineral composition that could be affected by starch formation. Furthermore, the landraces that had high mineral contents could be used as material for a biofortification breeding program.

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