

# Certificate of English Language Editing



## Manuscript Title:

Genetic Dissection of Grain Iron Concentration in Hexaploid Wheat (*Triticum aestivum* L.) Using a Genome-Wide Association Analysis Method

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### Abstract:

Iron (Fe) is an essential micronutrient of the body. Low concentrations of bioavailable Fe in staple food result in micronutrient malnutrition. Wheat (*Triticum aestivum* L.) is the most important global food crop and thus has become an important source of iron for people. Breeding nutritious wheat with high grain Fe content has become an effective means of alleviating malnutrition. Understanding the genetic basis of micronutrient concentration in wheat grains may provide useful information for breeding for high Fe varieties through marker-assisted selection (MAS). Hence, in the present study, genome-wide association studies (GWAS) were conducted for grain Fe. An association panel of 207 accessions was genotyped using a 660K SNP array and phenotyped for grain Fe content at three locations. The genotypic and phenotypic data obtained thus were used for GWAS. A total of 911 SNPs were significantly associated with grain Fe concentrations. These SNPs were distributed on all 21 wheat chromosomes, and each SNP explained 5.79%–25.31% of the phenotypic variations. Notably, the two significant SNPs...

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