American Journal of Agricultural and Biological SciencesAmerican Journal of Agricultural and BioloS. Kenzhebayeva, A. Abekova, Guoping Zhang, D. Zharassova, Fei Dai, N. Omirbekova and D. Tashenev. New Spring Wheat Mutation Resources with Improved Grain Quality, Metals Bioavailability and Yield Components //American Journal of Agricultural and Biological Sciences 2

Sciences

**Abstract**: Genetic variability in micronutrients is limited in wheat varieties. To broaden variation, seeds of cv. Eritrospermum-35 were irradiated with 100 and 200 Gy using 60Co, the treated seeds were grown to M7 generation with successive selection of the highest yield lines in each generation. Selected lines were evaluated for yield and grain quality traits such as iron, zinc and phytic acid concentrations, calculation of molar ratios of PA:Fe and PA:Zn. A number of mutant

lines had 2 to 3 times more iron and zinc concentrations and lower phytic acid concentration (1.1-3.5 times) and higher protein content (11.2-12.4%) relative to the parent were identified. Some M7 lines showed significantly larger grain weight (1.3-1.5 times) and number per

spike (2.0-2.1 times) than the parent. There were significant correlations between zinc and iron concentrations, between grain protein content, zinc, iron and phytic acid concentrations and grain weight per spike, mainly in 100 Gy-dosed lines. The TaPhyllc cDNAs nucleotide and

protein sequence similarities between parent and these M7 lines varied from 28.2% and 30.2% to 45.7% and 56.5%, respectively. The results clearly indicate that variability in grain nutrients and metals bioavailability in mutation resource is potential in wheat improving nutritional outcomes and overcome malnutrition.