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不同基因型小麦籽粒、面粉和麸皮中Ca和Zn含量的差异

Differences of Calcium and Zinc Contents among Flour, Grain and Bran of Different Wheat Varieties

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中文关键词: [小麦](#) [籽粒](#) [面粉](#) [麸皮](#) [钙](#) [锌](#)

英文关键词: [Common wheat](#) [Grain](#) [Flour](#) [Bran](#) [Calcium](#) [Zinc](#)

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中文摘要:

为了筛选富含人体必需营养素钙 (Ca) 和锌 (Zn) 的小麦品种, 改善食品营养结构, 以来自长江中下游地区的推广品种和部分国内外引进的小麦品种 (共112个) 为材料, 进行了籽粒Ca和Zn含量的测定和分析, 通过聚类分析选出其中39个代表性品种, 对其麸皮和面粉中的Ca和Zn含量进行了进一步分析。结果表明, 不同基因型品种籽粒中Ca和Zn含量的变异范围较宽, 品种间存在极显著差异, 面粉、麸皮和籽粒中均存在含量较高的品种。Ca和Zn含量均表现为麸皮中最高, 变异幅度最宽, 籽粒中次之, 面粉中最低且变异幅度也较小, 但“面粉 麸皮 籽粒”中营养元素的含量关系比较复杂, 并不总是呈显著正相关。品种NP164、青紫1号和荆州D402等可作为提高当地小麦面粉Ca和Zn含量的重要种质资源加以应用。

英文摘要:

Calcium and zinc are important nutritional divalent minerals to both wheat and human health. Screening and developing wheat cultivars rich in these minerals in flour will be beneficial to the food modification and human health. In the current study, the calcium and zinc contents in grains were surveyed in 112 wheat genotypes, the majority of which are the commercial cultivars released for the lower reaches of Yangtze River and others were introduced from overseas or other parts of China. Wide variations in both Ca and Zn contents were observed among the 112 genotypes and genotypic differences in these two components were significant. Thirty nine out of 112 genotypes, which represent for the different nutrient content levels in grains, or for special cultivars in seed color or starch, were selected to assay Ca and Zn contents in flour and bran fractions. Significant variations of calcium and zinc content in both flour and bran were also observed among cultivars. In comparison, the contents of the two minerals in bran were higher than that in grain, and the contents in flour were much lower than that in grain. The mineral contents in flour, grain and bran did not show paralleled variations and significant correlation of Zn content were observed only between flour and bran, and of Ca content only between flour and grain, suggesting that mineral content was mainly determined by the genotype. In addition, the variations of mineral contents among experimental replications for same genotype indicated that the environmental factors may also pose an effect on the mineral content. In summary, three cultivars, NP164, Qinzi1 and JinzhouD402, had a potential to produce Ca and Zn enriched flour that will benefit consumers.

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