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**BIOFORTIFIED COMMON BEAN GENOTYPES (PHASEOLUS VULGARIS, L.) AS IRON AND ZINC SOURCES IN BRAZILIAN POPULATION DIET**

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The common beans (Phaseolus vulgaris, L.) have an important role as a source of nutrients (proteins, carbohydrates, vitamins and minerals) and dietary fiber for Brazilians as a product present daily at both rural and urban people’s diet. Regarding minerals, common beans are especially rich in potassium, phosphorus, copper, iron, zinc and magnesium. The bioavailability of minerals is relevant and normally lower in vegetable. Some factors can affect bioavailability, such as cooking practices or mineral interaction with the food. The study was to evaluate common bean genotypes originated from CIAT’s (International Center of Tropical Agriculture) high mineral nursery, in order to identify sources with high iron (100 ppm) and zinc (500 ppm) contents which can be considered biofortified seeds for consumption by malnourished Brazilian people especially from the Northeast region. 81 common bean genotypes were originated from CIAT’s high mineral nursery and multiplied in Santo Antonio de Goias, Goias State, Brazil, at Embrapa Rice and Beans. Under irrigated conditions, the grains of these accessions were evaluated by Embrapa Rice and Beans, presented iron and zinc levels 50% and 43% higher than the ones of conventional cultivars, respectively; however, the productivity is still a challenge for the breeders. Also, a crossbreds variety, with higher levels of iron was identified by Embrapa Mid North and will be released in 2008.

**TH25**

**BREEDING CASSAVA FOR ENHANCEMENT OF CAROTENOIDS IN THE BIOFORTIFICATION PROGRAM IN BRAZIL**

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HarvestPlus is a network of research institutes in Latin America, Asia, and Africa which seeks to enhance the nutritional quality of food containing iron, zinc, and pro-vitamin A. The conventional crossing of different varieties of cassava, as also the identification and quantification of pro-vitamin A in these grains, have been the target of research by researchers at Embrapa Maize & Sorghum, through this biofortification program. In this sense, this work aimed to develop maize cultivars with higher pro-VA concentrations, inside the HarvestPlus program scenario. Two hundred forty-six (246) maize samples were screened for carotenoids profile. From this group, six inbred lines were selected for presenting higher total pro-VA content, ranging from 5.7 to 9.0 µg g-1 and averaged 6.6 µg g-1 (fresh weight basis). These selected lines were used to develop a pro-VA synthetic variety. They were crossed to generate all hybrids combinations. Parental hybrids planted in the nursery field ranged from 6.0 to 11.4 µg g-1 and averaged 7.2 µg g-1 in total pro-VA content (fresh weight basis). As expected, these partial results indicated pro-VA concentrations for this synthetic in this environment to be 7.2 µg g-1 (fresh weight basis). These parental hybrids were crossed and the seeds bulked. The bulked seeds were planted in an isolated field. About 100 plants were selected based on agronomic traits and 50 ears were already screened for carotenoids profile. For total pro-VA, total carotenoids, trans-β-carotene, β-cryptoxanthin, Zeaxanthin and lutein, the average values for the 50 ears (µg g-1, dry weight basis) were 8.1, 3.8, 4.9, 3.6, 17.5, and 5.3, respectively, while, for the selected 10 ears, the average values were 10.1, 3.0, 6.4, 4.3, 20.2, and 3.7, respectively. A large degree of variation for carotenoids profile was observed. These partial results indicated the possibility for increasing simultaneously several components, such as total pro-VA, total carotenoids, trans-β-carotene and β-cryptoxanthin. The pro-VA averaged values for this synthetic is expected to significantly increase over the cycles of recurrent selection.

**TH26**

**DEVELOPMENT OF MAIZE CULTIVARS FOR HIGHER PRO-VITAMIN A CAROTENOIDS CONTENT IN BRAZIL**

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HarvestPlus has a network of research institutes in Latin America, Asia, and Africa which seeks to enhance the nutritional quality of food containing iron, zinc, and pro-vitamin A. The conventional crossing of different varieties of cassava, as also the identification and quantification of pro-vitamin A in these grains, have been the target of research by researchers at Embrapa Maize & Sorghum, through this biofortification program. In this sense, this work aimed to develop maize cultivars with higher pro-VA concentrations, inside the HarvestPlus program scenario. Two hundred forty-six (246) maize samples were screened for carotenoids profile. From this group, six inbred lines were selected for presenting higher total pro-VA content, ranging from 5.7 to 9.0 µg g-1 and averaged 6.6 µg g-1 (fresh weight basis). These selected lines were used to develop a pro-VA synthetic variety. They were crossed to generate all hybrids combinations. Parental hybrids planted in the nursery field ranged from 6.0 to 11.4 µg g-1 and averaged 7.2 µg g-1 in total pro-VA content (fresh weight basis). As expected, these partial results indicated pro-VA concentrations for this synthetic in this environment to be 7.2 µg g-1 (fresh weight basis). These parental hybrids were crossed and the seeds bulked. The bulked seeds were planted in an isolated field. About 100 plants were selected based on agronomic traits and 50 ears were already screened for carotenoids profile. For total pro-VA, total carotenoids, trans-β-carotene, β-cryptoxanthin, Zeaxanthin and lutein, the average values for the 50 ears (µg g-1, dry weight basis) were 8.1, 3.8, 4.9, 3.6, 17.5, and 5.3, respectively, while, for the selected 10 ears, the average values were 10.1, 3.0, 6.4, 4.3, 20.2, and 3.7, respectively. A large degree of variation for carotenoids profile was observed. These partial results indicated the possibility for increasing simultaneously several components, such as total pro-VA, total carotenoids, trans-β-carotene and β-cryptoxanthin. The pro-VA averaged values for this synthetic is expected to significantly increase over the cycles of recurrent selection.

**Keywords:** Zea mays, carotenoids, biofortification, HarvestPlus