06.02-046 IMPROVING SEED NUTRITIONAL QUALITY BY BIOLISTIC AND AGROBACTERIUM-MEDIATED TRANSFORMATION OF TROPICAL MAIZE. Andrea Almeida Carneiro, Newton Portilho Carneiro, Carlos Henrique Siqueira de Carvalho, Maria Jose Vilaça Vasconcelos, Marcelo Antoniol Fontes, Edilson Paiva, Mauricio Antonio Lopes. EMBRAPA / CNPMS. CP 151, CEP 35701-970, Sete Lagoas, MG. mauricio@cnpms.embrapa.br

Maize is an important crop that provides a significant amount of protein and energy for human and livestock nutrition. Brazil produces more than 30 millions tons of this cereal yearly in 10 to 13 million hectares. The major structure of the maize kernel, the endosperm, constitute approximately 80% of the mature grain dry weight. The endosperm proteins of maize and most other cereals have a low percentage of several amino acids, such as methionine, tryptofan, and lysine,

which are essential for humans and other monogastric animals. Embrapa Maize and Sorghum of the Brazilian Agricultural Research Corporation, has a program for the production of tropical maize genotypes with enhanced nutritional quality. One of the major goals of this research is to improve endosperm protein quality by overexpression of a methionine rich protein, delta-zein. The gamma zein gene promoter was isolated by PCR from genomic DNA using primers designed in according with known sequences. The delta-zein gene was isolated using the same methodology. The binary vector pC3301 containing the gamma-zein gene promoter directing the expression of the delta zein was used in biolistic and *Agrobacterium*-mediated maize transformation. For the biolistic transformation, helium pressure, microcarrier flying distance, type of microcarrier particle, microcarrier concentration and DNA concentration, were optimized analyzing the transient expression of anthocyanin. This reporter system proved to be useful for protocol optimization of tropical maize lines. A concentration of 10^9 cfu/mL *Agrobacterium* strain LBA4404 diluted in infection medium supplemented with 200μM acetoseryngone and 0.03% Pluronic F-68 was used to infect 1.0 - 2.0 mm immature maize embryos. Resistent calli were selected in a N6 based medium supplemented with 2mg/L Dicamba and either 3mg/L PPT or 30 mg/L hygromycin. Putative transformed maize plants were regenerated and are growing in the greenhouse. Further DNA, RNA and protein analysis will confirm transformation. This work was supported by grants from FINEP/PADCT, PRONEX, CNPq, FAPEMIG and SEP/EMBRAPA.