Proximate Composition and Antinutritional Factors of Cowpea Genotypes Obtained Through Conventional Breeding

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INTRODUCTION. Cowpea (Vigna unguiculata [L.] Walp) is one of the most important grain legume crops that grow in tropical and subtropical zones of the world, being the major source of dietary protein, calories, fiber, minerals and vitamins for many people. The poor population from Northeastern Brazil eats cowpeas mainly to obtain protein and minerals such as iron and zinc in order to replace the high cost animal protein sources. Nevertheless, cowpeas possess some undesirable properties common to other legume seeds, such as considerable contents of antinutritional factors (protease inhibitors, lectins, among others). One way to overcome these undesirable characteristics while increasing the levels of key components is the development of new cultivars through conventional breeding of plants. This study aimed to evaluate proximate composition and contents of antinutritional factors of two cowpea genotypes produced by EMBRAPA Meio-Norte (Teresina, Brazil).

MATERIAL AND METHODS: Seeds were ground into fine flour and then placed in oven (45 °C). Total lipid, dietary fiber and ash determinations (triplicates) followed AOAC (2000) methodology. Protein was determined by Microkjeldahl combined with the photocolorimetric method by Baethgen and Alley (1989). Digestible carbohydrates were determined by calculating the percentile difference from all the other constituents. Toxicity assay was performed in mice by IP route, lectin activity by Moreira & Perrone (1977) and the protease inhibition assays by Erlanger et al. (1961).

RESULTS AND DISCUSSION: Both genotypes are excellent sources of protein (23.19-24.02%), fiber (17.75-19.78%) and have low lipid content (1.67%). The seeds were not toxic but showed inhibition of trypsin (24.2-28.2 IU) and chymotrypsin (26.66-32.17 IU) and lectin activity (80,000-320,000 IU).

CONCLUSION: Both genotypes of cowpea have usual nutrient/antinutrient values that characterize the high nutritional value of cowpea. The screening of new improved genotypes is always important to find those that gather the greatest amount of desirable nutritional attributes.

Keyword: Vigna unguiculata, genotype, nutrient e antinutrient
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