Effects of traditional cooking methods on the level of nutritional and antinutritional components of California black seeds (Vigna unguiculata) cultivated in North East of Argentina

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Cowpea (*Vigna unguiculata*, var. California black) is a legume of the Fabaceae family which is cultivated by small and medium-sized farmers in the North East of Argentina for either personal consumption (human or animal) or trade. Despite its potential as an inexpensive source of protein and energy, cowpeas are underutilized. A simple technology for preparing cowpea flour would stimulate increased consumption of this legume and also contribute to improve family income. The aim of this work was to analyze the effect of traditional cooking methods on nutritional constituents (carbohydrates, proteins, lipids) and antinutritional factors such as fitic acid, polyphenols and tannins of California black seeds. Seeds were subjected to the following treatments: soaking (120, 240 and 360min), cooking (20, 40 and 60min), autoclaving (10, 20 and 30min) and soaking-cooking (360min-20min and 360min-60min). Raw seeds contained 66.04% crude protein, 24.73% total carbohydrates, 2.6% lipid, 0.18% polyphenols, 0.20% tannins and 2.06% phytic acid (dry basis). Lipid content diminished in comparable proportion (15%) with different thermal treatments in contrast to protein content that did not change significantly. Soaked seeds presented a significative (p<0.05) decrease of all antinutrients analyzed, but in less extent than those thermally treated. Cooking (60 min) reduced by 25% to 38% the content of polyphenol, tannins and phytic acid. Autoclaving (30 min) treatment resulted in more significant reduction of phytic acid (83%) than polyphenols (61%) and tannin (55%) content. Similar results were obtained by combined treatment (soaking 360min-cooking 60min) except for phytic acid (63%).