Original Research paper

POTENTIALS AND SUITABILITY OF CASSAVA STARCH-DURUM WHEAT SEMOLINA BLENDS IN MACARONI NOODLE PRODUCTION.

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INTRODUCTION AND OBJECTIVES

Noodles and other pastas are popular worldwide because of their unique sensory properties, shelf stability and low costs. Demand for these products traditionally made from Durum-Wheat Semolina (DWS) has increased tremendously in African countries in recent years. Utilizing cassava as suitable alternative would support the recent demand-driven strategy adopted on a global scale to spur rural industrial development. This study was aimed at evaluating the potentials of using cassava starch in the manufacture of macaroni noodles.

METHODOLOGY

High quality cassava starch (HQCS) was mixed with DWS on a replacement basis to make blends containing 20-70% HQCS. Properties of macaroni made at three hydration levels (45, 50 and 55%) were determined. General linear model procedure of Statistical Analysis System (SAS, version 9.2) was used to compute data; means were compared at 5% significance (Fischer’s LSD) and Pearson’s correlation coefficients calculated among parameters.

RESULTS AND DISCUSSION

Protein and mixing stability decreased with increasing concentration of HQCS. Cyanide levels were less than 0.1 ppm. DWS and HQCS had similar pasting temperatures (50.2°C). Energy contents (375.16-393.54 Kcal/100g) were improved, while breaking force (2.07-5.06 N) was reduced. HQCS inclusion reduced cooking time to 7 min, but increased solid (6.84-18.71%) and soluble (8.73-13.37%) cooking losses. Correlation between final pasting viscosity and total cooking loss was significant (r = 0.9; P < 0.05).

CONCLUSIONS

Acceptable macaroni were those containing 50% HQCS, beyond which cooking and sensory properties were adversely affected. Dry macaroni noodles with acceptable properties were developed from cassava–semolina blends, thus promoting the potentials of cassava starch in macaroni production.