EFFECTS OF PROCESSING AND CONSERVATION ON MAIZE FLOUR PRODUCTION AND QUALITY

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Maize bread is a traditional food in northern Spain and Portugal. Usually whole flint white, yellow or orange grain is milled and mixed with wheat or rye. Although quality parameters have not been clearly defined, density, milling test and grain health is considered important traits. One of the main handicaps for maize bread diffusion is the lack of a processing and conservation protocol that allows conservation of quality for commercialisation. In this research, we tested the effects of several methods of grain drying, freezing, vacuum and storage on grain viability and quality for flour production. Environmental and genotypic factors have minor effects on grain production and quality, and the genotype x environment interaction is seldom significant. The main factor affecting grain quality and flour production is the time of storage, while freezing has very limited effects. The traditional air-drying and natural storage is adequate for flour production, although not for maintaining viable seed. An additional forced drying reduces moisture and grain damage. If freezing is required for controlling insect pests, damage is reduced and grain weight slightly increased. Finally, Vacuum packaging has no interesting effects. Therefore, the traditional processing can be improved by forced air drying and freezing.

Key words: maize, bread, flour, quality, processing, conservation