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EFFECT OF A-AMYLASE SOURCE ON ENZYMATIC ACTIVITY IN SORGHUM STARCH HYDROLYSIS

BOUDRIES-KACI NADIA [1], MARIANNE SINDIC [2], NAIMA BELHANECHE-BENSAMRA [3] AND BOUBEKEUR NADJEMI [1]

1High School Teacher Training, Bioactive Products and Biomass Valorization Research Laboratory, Department of Chemistry, Teachers, BP 92 Kouba, Algiers, 16050 Algeria
2University of Liege, Quality and safety of food products laboratory, Gembloux Agro-Bio Tech, 2 Passage des Déportés, B-5030 Gembloux, Belgium.
3 Department of Environmental engineering, Polytechnic School, El Harrach, Algiers, Algeria

Sorghum (*Sorghum bicolor (L.) Moench*) exhibit unique starches properties. These properties influence the digestibly of starch in the presence of α-amylases and can be a good raw material for glucose production. The aim of this research is to determine the susceptibility of amylase from different sources: α-amylases from human salivary, α-amylases from fungy (*Aspergillus oryzae*) and α-amylases from bacteria (*Bacillus subtilis*) and show how the source of amylase affects the activities in starch hydrolysis.

Starch sorghum was isolated and purified in the laboratory from white and pigmented seeds of cultivars from Algeria (In Salah). The enzymatic hydrolysis reactions were done in batch bioreactors and the reducing sugars obtained were determined quantitatively and qualitatively using HPAEC-PAD. The kinetic studies of enzymatic catalysis had allowed to identify of optimum operating conditions and to calculate enzymatic activities.

The results showed a significant influence of amylase source on the kind of maltooligosaccharides. The fungal α-amylases is more efficient than bacterial α-amylases.

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EFFECT OF DEGUMMING PROCESS ON MORINGA OLEIFERA SEED OIL

BOUKANDOUL SILIA [1,2], SUSANA CASAL [2], FARID ZAIDI [1]

1 Food Science Department, Faculty of Natural sciences and Life, University of Bejaia, 06000 Bejaia, Algeria
2 LAQV/REQUIMTE, Laboratory of Bromatology and hydrology, Faculty of Pharmacy, Porto University, Porto, Portugal
E-mail : boukandoul.silia@yahoo.fr

Moringa oleifera oil, also known as "Ben" or "Behen" oil, is extracted from *Moringa oleifera* seed kernels. It is characterized by a light yellow color and characteristics odor, similar to that of peanut oil. The degumming of *Moringa oleifera* oil is desirable to reduce cloudiness caused by phospholipids for demanding applications such as frying. The degumming process was carried out according to Anwar et al. (2005). This study was performed in order to determine the effect of the degumming process on some compositional parameters (carotenoids, fatty acids and sterols), and oxidative stability (anisidine value, specific extinctions and induction period) of *Moringa oleifera* oil according to the standards methods.

The results showed that the degumming process affects significantly the specific extinctions, induction period (75.1 h-34.1h). It affects as well the total carotenoids levels (5.8-5.0 mg/kg of oil). However it seems that anisidine value, fatty acid and sterol compositions are not affected.

Indeed the degumming process is desirable from the technological point of view, increasing the aptitude of an oil to resist at high temperatures; it reduces the total carotenoids levels. It decreases also the oxidative parameters such as specific extinctions and the induction period up to 34.1%, however, this value still high when comparing to other vegetable oils including olive oil. The fatty acid composition of degummed and non degummed *Moringa oleifera* oil was dominated by oleic acid, similar to olive oil, providing a huge number of health benefits such as reducing the risk of developing coronary heart disease. Together with a sterol fraction rich in β-sitosterol as a dominant constituent and considerable values of Δ^5-avenasterol, recognized for its anti-polymerization properties in heated oil.

Key words: *Moringa oleifera* seed oil, degumming, oxidative stability, oleic acid, Δ^5-avenasterol.