Original scientific paper
UDC 633.11-157.63(496.5)
664.641.12.016(496.5)

SURVEY OF HYDROTHERMAL PROCESSES IN THE FLOUR-MAKING PROPERTIES OF SOME SOFT WHEAT VARIETIES THAT ARE CULTIVATED IN OUR COUNTRY AND ABROAD

Abdyl Sinani[1], Majlinda Sana[2*]

[1]Department of Food Technologies, Professional College "Qiriazi", Taulanteve nn, Kamëz, 1029 Tirana, Albania
[2]Department of Applied and Natural Sciences, Faculty of Professional Studies, University of Aleksandër Moisiu - Durrës, Currilave nn, 2001 Durrës, Albania

[*]e-mail: lidabrahaj@hotmail.com

Abstract

The real adaptation of hydrothermic processes, when milling, depending on the morphological structure, physical-mechanical and chemical characteristics of the type of grain, is being widely studied today because they are closely related to the rational utilization of the grain. The purpose of our study is to determine the effect of hydrothermic processes during the milling process, of some soft wheat varieties that are cultivated in our country and abroad, as well as to determine in a comparative means, the flour-making properties of these varieties.

This study is composed of a deep analysis and research work over four varieties of soft wheat: Agimi, Lushnja, Apache and Ankor. The samples of the wheat was taken and stored according to AACC method. For each experiment, we used one kg of wheat from each variety. In order to determine the leguminous seeds, impurity, size, foreign winds and varieties were according to S SH 605:2000, and for determination of grain moisture was referred to S SH 712:2000. We did conditioning in environmental conditions (in the cold) for the four varieties after we cleaned them, moistened them with 35 - 38 mL of water each until the humidity of 15.5 - 16% observing them after 12 - 14 hours. The ambient temperature was 17.1 ^{0}C and the relative air humidity was 67%. We did conditioning the thermal treatment (warm) after soaking, of the two varieties: Agimi and Lushnja (put in plastic) for two hours in a thermostat. After cold and warm conditioning, grinding for each of the varieties was done with the "Frangimod" mill type, which provides 6 fractions: coarse grains, fine grains, dust, flour, thin, and thick brans. Fractions obtained from grinding after weighing were measured as of volume. Determination of ash was done by burning at 550 - 600 ^{0}C, according to AACCI Method 08-01. The cellulose assessment was performed by Kyshner-Hanen method. From the comparison of the amounts in weight and volume of the fractions of each variety, the flour-making properties of the four varieties and the effect of their thermal treatment are highlighted.

The results of conditioning in the cold of the flour varieties show: Agimi, Lushnja, Apache and Ankor show the following features: highest values in the thick grain - Agimi (16%) and Apache (16.6)%, the average value distinguished in Ankor variety (15%), and minimum values distinguished in Lushnja variety (13.8%); in the fine grain: highest values in Apache (26.8%), and Ankor (25.2%), average values in Lushnja (16.2%), and minimum values in Agimi (13.6%), while in dust we distinguished the highest value in Agimi (9%). Results from the observations of Agimi variety, show that the amount of coarse grain by weight decreases from 16% to 14.9% (after conditioning in warm), the same is observed in the Lushnja variety (from 13.8% to 12.6%). It is evident that the amount of coarse grain decreases while that of fine grain increases. In this case, the total amount of endosperm extracted from the grain of wheat increases. During the heat conditioning, not only the quantity of extracted endosperm parts increased, but their quality also improved.

From acquired data comparison, it appears that Agimi and Apache varieties have better flour-making properties compared to others observed. As of Agimi and Lushnja varieties that occupy large areas, the advantage of thermal processing is given in a comparative way compared to that at ambient temperature. Quantitative and qualitative

determinations of the grain fractions observed, allow us, through the dependence of the parameters found, to evaluate the hydrothermal processes for special varieties that are cultivated in our country and overseas.

Key words: *Varieties, Hydrothermal processes, Flour-making properties, Coarse grains, Fine grains, Dust.*