Title Effect of harvesting time and curing temperature on the properties of the Iranian white garlic

Author Fariba Bayat, SeyedMoineddin Rezvani and Ali Ehsan Noarati

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Abstract

Proper drying is the main task of garlic cultivation in Hamedan, as one of the most important regions for producing garlic in Iran, to succeed a good market nationally and internationally. The improper drying is the most serious post harvest loss so, for the determination of the best conditions for white garlic curing, bulbs were harvested at three stages. When approximately 70 percent of the top leaves turned yellow was the first stage of harvesting, while the second part began when whole leaves became yellow and eventually the last harvesting was ensued by getting dry, brown leaves which fell over on the field. After harvesting, bulbs were selected for uniformity in size and divided into four groups for curing before 6 months storage at ambient temperature. One group was dried at natural condition in the shade at 24±2 °C and the other groups were dried artificially by heating at 35, 45 and 55°C. The results of two years showed that after harvesting, there was no significant difference between pyruvate, color and texture contents of cloves. Drying time at natural condition of the first stage of harvesting was longer than artificial drying process time as well as the other harvesting stages. At temperature higher than 45 °C some cloves turned yellow, soft and sticky especially at the early stages of harvesting. During the post harvest drying of garlic the moisture content of cloves was relatively constant, however it decreased dramatically in stem and skins. After curing, moisture contents of the cloves, skins and stem reached 64±2, 20±4 and l5±1 percent respectively. During the storage, browning of color and the pyruvate content increased and the texture went down. All these changes became faster at higher temperatures. The weight loss and sprouting of garlic bulbs for 6 months storage were significantly reduced in the first stage by drying at 35°C and the same results held for the second stage of harvesting by drying at 35 and 45 °C as compare to other treatments.