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EXPERIMENTAL INVESTIGATION OF EFFECT OF CRYOGRINDING ON FLAVORING COMPONENTS OF SPICES

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Abstract

In the normal grinding process, heat is generated when energy is used to fracture a particle into a smaller size. This generated heat usually is detrimental to the product and results in some loss of flavor and quality. The fat content of spices poses problems of temperature rise during grinding. Spices loose fraction of their volatile oil or flavouring components due to this temperature rise. Therefore, cooling of spices at low temperature before feeding to the grinder and maintaining the low temperature in the grinding zone can significantly retain the volatile oil or other flavouring components. Attempt is made to investigate the retention of flavouring components of spices cumin seed, coriander seed, black pepper and turmeric. Liquid nitrogen used to provide refrigeration needed to precool the spices and to maintain low temperature by absorbing heat generated during the grinding operation. This paper discusses the experimental analysis of effect of low temperature on quality attributes of spices sample and comparison with the conventional grinding process.

Keywords: spices, grinding at low temperature, flavouring components