QUÍMICA SUSTENTÁVEL

UM TEMA ... UMA REFLEXÃO

XX ENCONTRO NACIONAL

SOCIEDADE PORTUGUESA DE QUÍMICA

14 A 16 DEZEMBRO 2006 CAMPUS DE CAPARICA - FCTIUNL

Study of the Drying Kinetics of Cherry Pepper and Chemical Characterization

Raquel P. F. Guiné, Maria João Barroca, João M. F. Faustino
Departamento de Indústrias Agro-Alimentares, Escola Superior Agrária de Viseu
email: raquelguine@esav.ipv.pt

The Pimento or Cherry Pepper is a variety of large, red, heart-shaped chile pepper (Capsicum annuum) that measures 7 to 10 cm long and 5 to 7 cm wide (medium, elongate). Pimento or pimentão are Portuguese words for "bell pepper", while pimenta refers both to chile peppers and to black pepper. The flesh of the sweet pimento is sweet, succulent and more aromatic than that of the red bell pepper. These pimentos are the familiar red stuffing found in green olives. Some varieties of the pimento type are hot including the Floral Gem and Santa Fe Grande varieties. Peppers are fleshy and heavily seeded. It matures from green to red. It is considered an extremely good processing, pickling and home garden pepper. The variety of chile peppers available is quite remarkable. They vary in size, color, and flavor and the level of heat as measured in Scoville heat units. The higher the number of Scoville heat units, the hotter the pepper. Here are the some of the more popular varieties. Chiles may be called different names depending on the grower, retailer, and where they are grown.

Cherry pepper is very rich in Vitamin C, and when ripe has an important quantity of Vitamin A. It is also a source of calcium, phosphorous and iron. Its attributed medicinal properties are very diversified: it helps cicatrisation, prevents arteriosclerosis and haemorrhage, avoids cholesterol and improves physical resistance.

The dehydration of cherry pepper is a method used to preserve it, combining effects of physical and chemical stability with the reduction in weight and transportations costs.

The present work aimed, on one hand, the study of the drying of green peppers, in terms of drying kinetics evaluated at 30, 40, 50, 60 and 70 °C, having the experimental data been fitted to different kinetic models from literature. On the other hand, the chemical characterization in fresh and after drying at the lowest and highest temperatures was analysed, for evaluation of the effect of drying and drying temperature on the chemical composition of the product. In this way, the analyses made were: moisture content, sugar content, proteins, ash, fat, fibre, acidity and vitamin C.

From the results obtained, it was concluded that the model that best describes the dehydration kinetics was the logarithmic (MR = c – a exp (- kt)), and that drying influences the chemical composition of the peppers (due to volatilization of some components, oxidations processes and protein denaturising). On the other hand, the influence of the drying temperature was not very significant.