Asian Journal of Home Science (June, 2010) Vol. 5 No. 1 : 90-93

Research Paper :

Chemical composition of garlic powder using different drying methods

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Accepted : *February, 2010*

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ABSTRACT

Commonly used garlic (*Allium sativum* L.) was dried by shade, solar, oven and microwave drying methods. Sensory analysis indicated that all the dried garlic powders were in the category of '*liked moderately*'. Proximate composition varied from 0.78% to 8.87% and mineral content ranged from 0.29 to 86.50 mg/100g. Polyphenol content was almost similar in all the dried garlic powders whereas β-carotene and ascorbic acid contents were maximum in shade dried garlic powders *i.e.* 0.69 and 5.39 mg/100 g, respectively.

Key words : Garlic powder, Sensory analysis, Nutritional evaluation, β-carotene, Ascorbic acid, *Allium sativum* L.

Garlic (*Allium sativum* L.) is the second most widely cultivated spice and used allium next to onion. India ranks third in production of garlic (4.30 lakh tonnes), next to Korea and china (Kumaran *et al.,* 2008). It is grown throughout the plains of India and used by large segment of population in various forms. Fresh garlic have distinct aromatic odour and pungency which are seldom carried over to the processed products. Garlic pickle, powder, paste, flavour and flakes are a few value added products. Encapsulated garlic powder, flavour and volatiles are also being exported now (Joshi *et al.,* 1998). Some are added to improve texture and to introduce a palatable colour or odour and to improve the shelf-life of food. Garlic has potential medicinal values. Besides, colouring and flavouring material also indirectly used as preservative in many pharmaceutical preparations (Lamikanra, 2002). It has also been recognized to possess several medicinal properties (diuretic, expectorant, laxative, anti-bacterial, anti-spasmodic, anti-dyspeptic, anti-flatulent, anti-pyretic, etc.) and have been effectively used in the indigenous systems of medicine in India as well as in other countries. Apart from the traditional use, a host of beneficial physiological effects have been brought to the fore by extensive animal studies. Garlic has beneficial influences on lipid metabolism (Srinivasan *et al*., 2004), efficiency as anti-diabetics (Srinivasan, 2000), and ability to stimulate digestion due to their carminative properties. Its extracts have been found to beneficially inhibit platelet aggregation (Srinivasan, 2005). Garlic is fair source of vitamins and minerals. The garlic that is dried is not very similar to the fresh garlic for culinary purposes. The fresh garlics are more susceptible to mould attack, especially after preparation for market. But by making powder of garlic, it is very convenient to store it for a period of one or two weeks for day to day use in the kitchen, especially for flavoring *Biriyani* and meat preparations. Considering importance of garlic powder, an attempt was made to develop garlic powder and its nutritional evaluation was carried out.

METHODOLOGY

Garlic (*Allium sativum* L.) was procured from the local market of Hisar city for experimental work. Blanching and sulphiting : To improve the colour and shelf-life, garlics were subjected to blanching by steeping in boiling water for 10-15 seconds and then immersing in 0.2 per cent KMS solution for 5 minutes at room temperature (Singh *et al.*, 1997). Treated garlics were chopped into small pieces and dried by four different drying methods.

– Shade drying:- Garlics were dried in shade at room temperature.

– Oven drying:- Garlics were dried in oven at 50 ± 5^0C temp. for 6-8 hrs.

– Microwave drying:- Garlics were dried in microwave of 800 W power for 3 to 4 minutes.

– Solar drying:- Garlics were dried in hot air solar dryer at 54^0 C temp. for 6-8 hrs.

Dried garlic pieces were ground in grinder to make fine powder. The sensory quality of the developed powders in respect of colour, appearance, flavour and texture was judged by panelists using 9- point hedonic