International Journal of Processing and Post Harvest Technology
Volume 3 | Issue 1 | June, 2012 | 44-48
RESEARCH PAPER

# Effect of drying conditions on rehydration characteristics of spinach

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**SUMMARY :** Spinach was dehydrated in mechanical tray dryer at 40, 50, 60 and 70$^0$C temperatures and in open sun drying with loading density 2.0, 2.5 and 3.0 kg/m$^2$. It was found that spinach did not have any constant rate of drying period and major drying took place in falling rate period except some accelerating period in open sun drying initially. It was observed that drying temperature affects the rehydration ratio, coefficient of rehydration and moisture content in rehydrated samples. It was also observed that the loading density did not influence rehydration characteristics in rehydrated samples. Thus results indicated that chemically treated samples had higher rehydration ratio than blanched and untreated samples and more acceptable than others.

**Key Words :** Blanching, Loading density, Try dryer, Open sun, Rehydration ratio, Coefficient of rehydration, Moisture contents

**How to cite this paper :** Tiwari, P.S., Samsher and Singh, B.R. (2012). Effect of drying conditions on rehydration characteristics of spinach, *Internat. J. Proc. & Post Harvest Technol.,* **3** (1) : 44-48.

**Research chronicle :** Received : *06.02.2012;* Sent for revision : *22.03.2012;* Accepted : *16.04.2012*

The fresh spinach is more commonly used after cooking because of its perishable nature. The most commonly used leafy vegetables are green and red amaranth, spinach(palak), chakota, fenugreek leaves, coriander leaves, kachi leaves, pudina, drumstick and curry leaves, which contribute to flavour, green colour, minor nutrients as well as medicinal properties. The conventional cooking of these vegetables results in the losses of water soluble vitamins and minerals and change in colour. However, the changes that occur during processing of leafy vegetables with regard to vitamins and colour are less understood. Secondly because of perishable nature, leafy vegetables are more commonly used immediately after harvest .The leafy vegetables are seasonal and available in plenty at a particular area bringing complexity in its post harvest processing. In peak season, prices fall steeply. The producer have to sell at throw away prices, delay leads to sharp fall in market prices, enormous deterioration in quality as well as quantity of vegetables. There are many methods of preservation of foods**.** Among these, the techniques of drying is well accepted and probably the oldest method of food preservation practiced by the mankind**.** It is relatively economical method, as concentration of solids become high, water activity reduces greatly, and product becomes chemically stable and free from insect-pest attack and mould- yeast growth during storage. Drying has been practiced at domestic level by utilizing solar energy. Long drying time, variation in weather and exposer to direct sun light leads to poor quality of the end product. Tray dryers operated by electrical energy, solar energy and gasifires are commonly used for dehydration of vegetables, (Mandhyan *et al.,* 1988). The study was conducted to see the effect of drying temperature, loading density and pretreatment on drying characteristics of spinach.

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## EXPERIMENTAL METHODS

**Preparation of samples:**

The fresh spinach was washed thoroughly in tap water so as to remove roots and stem. Leaves and soft stem were