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Effect of drying on iron and vitamin C content of selected vegetables

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ABSTRACT

The green leafy vegetables viz. cabbage, fenugreek leaves and spinach and three other vegetables viz. cluster bean, cauliflower and okra were dried in cabinet tray dryer, in sunlight and under shade. The selected vegetables were biochemically analysed for the estimation of vitamin C, total iron and bioavailability of iron in fresh and dried form. The cabinet tray dried samples showed 83.33 to 96.65 per cent retention of total iron, cabinet tray dried vegetable samples retained highest ionisable iron content as compared to shade dried and sun dried vegetable samples. The drying process influenced significantly ($P < 0.05$) the ionisable iron content of all the selected vegetables except for cluster bean. Vegetables dried in cabinet tray dryer exhibited the highest per cent bioavailability of iron as compared to sun dried and shade dried vegetables. Process of drying influenced significantly the per cent bioavailability of iron of all the selected vegetables except for cabbage and cluster bean. The per cent retention of vitamin C of cabinet tray dried vegetable samples was significantly higher as compared to the remaining two modes of drying used under study. Cabinet tray drying was found to be superior in respect of retention of vitamin C, total iron and bioavailability of iron in selected vegetables as compared to sun drying and shade drying.

Key words : Drying, Vegetables, Vitamin C, Total iron, Bio-availability of iron

INTRODUCTION

Vegetables are important part of our daily diet. Vegetables perform for better than just decorating the dining table. They increase the resistance power and improve health of human beings. Vegetables and fruits are the main sources of vitamins and minerals. Production of vegetables is seasonal and the market will be over flooded during peak seasons at particular period. As this commodity being perishable, the spoilage of large quantity of vegetables occurs due to the abundant supply during season. The market glut and huge wastage can be prevented by preserving the vegetables. Considering the low bulk density of dried vegetables, drying is considered to be the most suitable and easy method of preservation.

As fresh vegetables are rich sources of vitamin C and good sources of minerals, it should be included in daily diet. However, vegetables are not available in some conditions such as in off season or for people on front. Even vegetables can not be cultivated in some areas due to climatic conditions. Thus, due to such reasons, fresh

vegetables are not available to be included in daily diet. In such situations, preserved vegetables can fill up the gap to some extent.

Iron deficiency (anaemia) is one of the most prevalent deficiency diseases throughout the world. Dietary iron deficiency is the main cause of anaemia and suggestive cause for this situation is a low availability of dietary iron. Most of the commonly consumed foods are poor sources of iron. Indian population depends largely on vegetables for supply of iron. Hence, a large amount of vegetables need to be included in daily diet. If vegetables are dried and included in the diet, from a small amount of bulk relatively large amount of iron can be made available through it. Hence, it can be helpful in prevention of iron deficiency anaemia.

About 90 per cent of a person's dietary vitamin C requirement is obtained from fruits and vegetables. When fresh fruits and vegetables are not available in some situations, dried vegetables can serve this purpose by providing some amount of vitamin C through it. Drying vegetables result into both nutrient and culinary losses.