EFFECT OF DEHYDRATION METHODS ON CHEMICAL PROPERTIES AND ANTIOXIDANTS IN DEHYDRATED POWDERED VEGETABLE

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Vegetables possess essential dietary nutrients such as vitamins, minerals, fiber and essential antioxidants. Clinical research has revealed that consumption of vegetables and fruits are beneficial to age related diseases, cancers and heart diseases. Storage of fresh produce is the best way to maintain its nutritional value, but most storage techniques require low temperatures, which are difficult to maintain throughout the distribution chain of fresh produce. Present study was conducted to evaluate the effectiveness of various dehydration techniques; sun drying, solar drying, freezing & drying (Freeze one hour followed by mechanical drying at 55°C), vacuum drying and oven drying on chemical properties and antioxidants in different dehydrated powdered vegetable prepared from Pumpkin (*Cucurbita maxima),* Tampala (*Amaranthuscaudatus),* Sweet potato (*Ipomoea batata) and* Hibiscus (*Hibiscus rosa-sinensis).* Moisture content, total ash, crude fiber, fat, crude protein, total phenolic content and β - carotene were determined (*n=3*). The results were analysed by complete randomized design using ANOVA and mean separation was done by using Least Significant Difference (LSD) at $\alpha = 0.05$. Vacuum dried pumpkin powder retained higher level of fat content (2.20 %). The value was significantly different from other treatments except solar drying. In pumpkin ash content (4.35%) was significantly different from all other treatments. Higher retention of β-Carotene and total phenolic content was recorded in vacuum dried samples significantly ($\alpha < 0.05$). Sun drying and solar drying were significantly affected on reduction of retention of total phenols. Tampala (*Amaranthus caudatus) and* Hibiscus (*Hibiscus rosa-sinensis)* powders contain higher level of anthocyanin under vacuum drying. Ash and fiber content of oven dried samples were higher than the protein content. Therefore vacuum drying is recommended as the most effective drying method to protect chemical properties and retention of antioxidants in dehydrated vegetables.

Keywords: Dehydration, Vegetables, Proximate Composition

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