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Effect of Drying Temperature on the Quality of *Stevia rebaudiana*

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Abstract

Recent research has shown that consuming stevia in its raw form, fresh or dried, helps to treat several health problems such as diabetes, allergies, digestive problems, anxiety, and high blood pressure. Besides these benefits, it also contains vitamin C, calcium, beta-carotene, niacin, chrome, iron, magnesium, potassium and silicium, proteins and fiber. Therefore, it is important to find alternatives to dry the plant's leaves trying to minimise its negative effects and keeping the amount of medicinal properties.

The main objective of the drying process is to eliminate moisture and to stabilise chemically and microbiologically natural products. Generally, the drying process leads to a reduction of the visual, organoleptic and functional characteristics of the plants which affect negatively its final quality parameters like colour, texture, aroma, essential oil content and shape. These effects are caused by the increase of the product's temperature while drying, the drying time and the elimination of moisture. The knowledge of the drying parameters that minimise these effects and that allow to obtain products with the required quality characteristics is a necessary task to study.

The purpose of this study is to establish the effect of the drying temperature on the colour of *Stevia rebaudiana*. Since this plant is used as tea or as herb infusion, the colour is also an essential criterion for quality which influences the consumers' acceptance of the product. The herbs were dried in a tray oven at temperatures between 40°C and 80°C with controlled air flow and relative humidity of the air. The change in colour was determined with a colorimeter Minolta CR400 which allows a tridimensional colour representation in coordinates L*, a* and b*. The drying kinetics was also determined. Finally it was found that combinations of temperatures beginning with high temperature are not advisable since they produce severe changes in the colour that affect negatively the final quality of the product, diminishing their medicinal properties and their commercial value.

Keywords: Drying, quality, stevia