

## **Impact of drying methods on antioxidant activity, phenolic and flavonoid compounds in *Stevia rebaudiana* Bertoni leaves**

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### **ABSTRACT**

*An experiment was conducted at the Faculty of Agricultural Engineering Sciences, Baghdad University (Iraq) during the spring season of 2023 to assess the impact of eight drying techniques and drying time on antioxidant substances (Phenolics and Flavonoids) and antioxidant activity, in Stevia leaves. The study included shade drying, oven drying at 40, 50 and 60 °C, and microwave drying for 1, 2 and 3 minutes. The treatments were arranged using a randomized complete blocks design (RCBD) with three replications. The results showed that the contents of phenolic and flavonoid compounds differed significantly according to the drying technique, drying time and conditions. In general, microwave drying gave the best results, where the highest phenolic content was observed after 3 minutes of microwave drying, while the highest flavonoid content was recorded after 2 minutes. In contrast, a reduction in some compounds was observed during shade drying at 40 °C. These results indicate that the preservation of antioxidant compounds was mainly influenced by the interaction between drying temperature and drying time. Under oven drying at 40 °C, the moisture content decreased from 76.28% in fresh stevia leaves to 11.57% after 7 hours of drying, after which the moisture content remained constant and the leaves reached a stable weight. Higher antioxidant activity was observed when the moisture content was approximately 70%. The highest total phenolic content was recorded in fresh stevia leaves, whereas the lowest values were observed at the 3 h, 5 h and 6 h drying intervals.*

**Keywords:** Antioxidant activity, drying temperature, phenolic and flavonoid compounds preservation, stevia