



## Evaluation and comparison of different extraction methods from *Stevia rebaudiana*

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**Background and objectives:** *Stevia rebaudiana* Bertoni is a herbaceous and a small shrub of the Compositae family. It is native to certain regions of South America. Since 1970s, *Stevia* extracts have been extensively used in many countries as a sugar substitute. *Stevia* is cultivated in many countries: Paraguay, USA, Mexico, Central America, Japan, China, Malaysia, South Korea, Spain, Italy and UK. In Brazil, Korea and Japan, *Stevia* leaves and refined extracts are officially used as a low calorie sweetener. This study was planned to extract stevioside from stevia leaves using different methods such as maceration, Soxhlet, microwave and ultrasonic irradiation and to characterize it so as to know about its extraction yield. **Methods:** *Stevia* plants were raised in open fields in Roudsar, Gilan, Iran. Sonication was performed in Bandelin SONOPULS ultrasonic homogenizers with 20 kHz processing frequency, a nominal power 250 W, uniform sonic waves and constant sound radiation. The microwave-assisted procedures were carried out in a Milestone Microwave Oven operating at 1600 W. **Results:** The stevioside extraction percentage through HPTLC was shown to be in highest percent for extraction under ultrasound irradiation. Water was found to be suitable for the high yield of extracted stevioside in this study. **Conclusion:** This method could further be employed at large scale and could be used as an effective method for extracting higher yield of glycosides for industrial applications.

**Keywords:** extraction, *Stevia rebaudiana*, ultrasound