



Enhancement of Extraction Parameters for Bioactive Substances from *Ocimum basilicum* Leaves through Sonotrode-Assisted Ultrasonic Extraction

Carolina Aloisio*^(1,2); María del Carmen Razola-Díaz ^(3,4); María José Aznar-Ramos ^(3,4); Marcela R. Longhi ⁽²⁾; Alfonsina E. Andreatta ⁽¹⁾; Vito Verardo ^(3,4).

⁽¹⁾ *Ingeniería de Procesos Sustentables (InProSus), Facultad Regional San Francisco, Universidad Tecnológica Nacional, CONICET, 2400, San Francisco, Córdoba, Argentina.* ⁽²⁾ *Unidad de Investigación y Desarrollo en Tecnología Farmacéutica (UNITEFA), CONICET and Departamento de Farmacia, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba. Ciudad Universitaria, 5000-Córdoba, Argentina.* ⁽³⁾ *Department of Nutrition and Food Science, University of Granada, Campus of Cartuja, 18071 Granada, Spain.* ⁽⁴⁾ *Institute of Nutrition and Food Technology 'José Mataix', Biomedical Research Center, University of Granada, Avda del Conocimiento s/n., 18100 Granada, Spain.*

*correo electrónico: caloisio@facultad.sanfrancisco.utn.edu.ar

Sweet basil (*Ocimum basilicum*) leaves are rich in bioactive compounds that present therapeutical benefits for human health. Ultrasonic-assisted extraction (UAE) is frequently used to obtain phenolic compounds in plants. However, few works have developed multivariable studies to find the optimal conditions to extract the maximum amount of compounds, especially applied to UAE via sonotrode. The purpose of this work was to perform a multi-variable study employing a Box–Behnken design to collect the highest active compound content from *Ocimum basilicum* leaves. The efficacy of the design was endorsed by ANOVA. The studied parameters for UAE via sonotrode were ethanol/water ratio, amplitude and time. The analyzed responses were the rosmarinic acid, sum of phenolic acids and sum of phenolic compounds content. Optimal conditions were found to be 50% ethanol/water, 50% amplitude and 5 min. 27 bioactive compounds were identified by HPLC-ESI-TOF-MS, when the extract was collected by applying the optimal conditions. *Ocimum basilicum* may be appreciated as a valuable source of important bioactive substances for pharmaceutical use.