

## Optimisation des paramètres d'extraction des molécules bioactives de *Salvia officinalis* en utilisant les plans d'expériences.

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### Abstract. Optimization of Extraction Parameters of Bioactive Molecules from *Salvia officinalis* Using Experimental Design.

**Description of the subject:** *Salvia officinalis* is a medicinal plant traditionally used for the treatment of several diseases such as diabetes and inflammatory diseases, until now, many studies have been conducted on its chemical composition and its biological activities, but optimization of extraction methods of its chemical compounds don't exist in the bibliography.

**Objectives:** The aim of this work is to study and optimize the extraction parameters of bioactive molecules from sage leaves.

**Methods:** The extraction of bioactive molecules from the plant was carried out by soxhlet extractor using 3 different solvents (ethanol, dichloromethane and hexane), we studied the extraction process for each solvent using a full factorial experimental design with two factors and two levels. The selected factors are 'extraction time' and 'heating power'; the studied answers are 'extraction yield' and 'polyphenols yield'.

**Results:** After the exploitation of results, we determined the effects of factors on the responses and developed the mathematical models of processes. Generally, the effect of heating power on the extraction yield is more important than the extraction time. Ethanol's use allows the obtention of better results compared with hexane and dichloromethane.

**Conclusions:** Ethanol is the reference organic solvent for the extraction of bioactive molecules from *Salvia officinalis* leaves, the increase in heating power reduces extraction time and increases extraction yield.

**Key Words:** *Salvia officinalis*, Factorial Experimental Design, Soxhlet, Extraction yield, Polyphenols.