

Chemical Characteristics, Antioxidant Activity in Coffee of Date Seeds

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Introduction

Conventional coffee is a recognized source of numerous bioactive compounds, among which caffeine holds a prominent place. Nevertheless, caffeine consumption is associated with pharmacological effects that may include disruptions to the sleep-wake cycle and the induction of physiological stress responses. The objective of the present study is the formulation and characterization of a caffeine-free coffee beverage from date seeds.

Materials/Methods

The seeds used were obtained from dried dates, variety (Phoenix dactylifera L.), from the Biskra region (Algeria). A pre-treatment of the seeds was carried out involving immersion in hot water, followed by a drying. The seeds then underwent a roasting process, and were subsequently cooled to ambient temperature (approx. 20-25°C). Fine homogeneous powder was obtained after a mechanical grinding. Beverage preparation was performed by percolation using a standard filter coffee maker system. A sensory evaluation, based on hedonic and preference tests with a consumer panel, was conducted to determine the acceptability of the different formulations. Samples were anonymized by coding prior to evaluation. No exogenous sugar was added in order to preserve the intrinsic organoleptic profile of the beverage.

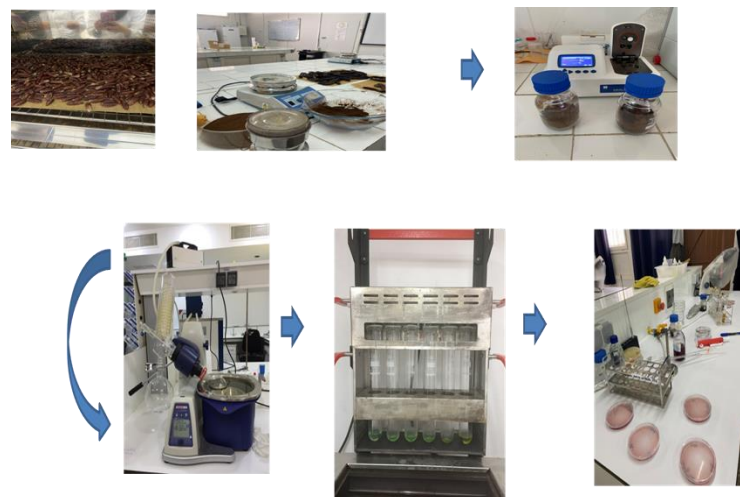


Figure 1: Preparation process

Results/Discussion

The infrared spectrum of date seed powder revealed a rich composition, comprising polyphenols, cellulose, hemicellulose, lignin, phenolic acids, and coumarins. Microbiological analyses indicated that the samples complied with current food microbiology standards.

Conclusion/Perspectives

In conclusion, the valorization of date seeds, a by-product of the date industry, as an ingredient for developing caffeine-free functional beverages represents a promising strategy for economic diversification and the sustainable utilization of agro-industrial resources.