

# Date stone as source of phenolic antioxidants extracted by microwaves: Optimization study

## Authors

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## Description

Phenolic compounds are a group of aromatic secondary plant metabolites widely spread throughout the plant kingdom. Most of the beneficial characteristics of phenolic compounds have been ascribed to their antioxidant activity. As antioxidants, polyphenols play an important role in the prevention of human pathologies. Moreover, they have many industrial applications, for example they can be used as natural colorants, preservative for foods and applied in the production of paints, paper and cosmetics (Hayat et al., 2010). Due to these countless beneficial characteristics, researches have been intensified aiming to agricultural and agro-industrial by products as sources of bioactive phenolic compounds. Date stone (*Phoenix dactylifera*) constitute approximately 10-15% of the fruit and they are considered a waste by-product of many date processing (Briones et al., 2011). In this study, microwave-assisted extraction (MAE) method was investigated for extraction of total phenolic compounds (TPC) from date stone (*Phoenix dactylifera*) by response surface methodology. The central composite design (CCD) was used to study the effects of three independent variables; microwave power, irradiation time, solvent fraction on the TPC yield and the antioxidant activity. The optimal conditions of extraction allowing to obtain a better yield (efficiency) in TPC are 600W for the microwave power, 30s for irradiation time and 40%(v/v) for ethanol fraction. MAE is more efficient than conventional extraction method to obtain TPC from date stone. The experimental values were reasonably close to the predicted values confirming the validity of the predicted models.

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