

***PHOENIX DACTYLIFERA L.* PALM SEEDS A BY-PRODUCT AS A SOURCE OF BIOACTIVE COMPOUNDS**

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Abstract. *Phoenix dactylifera L.* seeds are rich in phytochemicals, such as phenolics, anthocyanin, carotenoids, tocopherols, tocotrienols, phytosterols, etc., dietary fiber. Also, it is reported that to possess several beneficial health properties explored under in-vitro and in-vivo conditions. Further research in this area would provide valuable information for the potential utilization of date fruit and seed as functional food ingredients. On the other hand, artificial antioxidants have some defects in the body cells and the immunity system, so it's crucial to find natural sources to avoid these problems.

Introduction. Seeds powder contain proteins around 5%, and these proteins have the majority of essential amino acids, so it is very important to study the possibility of seeds powder as a source of vegetable protein that can be supplied in many dairy products, mainly that target people who are suffering from casein allergy. There are several crucial directions of the importance by using by-products:

- Valorization of food wastes for edible purposes represents a challenging field for researchers where losses along the production chain vary from 20 to almost 50% regarding the raw materials group. The most considerable losses during processing are fruit and vegetables as raw materials.

- Palm seeds are a valuable waste with bioactive compounds that give the importance of these wastes used as a by-product.

- The need for using natural antioxidants and antimicrobials in the sector of food production instead of chemical antioxidants.

Main part. Methodology of analyzing bioactive profile in *Phoenix dactylifera L.* Palm seeds includes:

- Preparation of palm seeds as described by Djaoudene et al. (2019).

- Extraction of bioactive compounds by the follow steps: isolation of seeds manually; soaking in water; washing to remove any remaining date flesh; air drying for a week oven drying at 40 °C crushing by a mortar; grounding by coffee grinder; 3 times extraction at room temperature at 24 hours in 75% acetone; centrifugation- filtration-evaporation in rotary vacuum at 40 °C; aqueous extracts were frozen at -20 °C in freezer at 24 hours; freeze drying and storage at -20 °C. There are different types of the commonly used extraction methods, such as ultrasonic extraction, agitation extraction, enzymatic extraction, hot water extraction.

Different phytochemical analysis of date seed extracts can be applied to study antioxidant potential: Total phenolic content (TPC); Total flavonoid content (TVC); Anthocyanins and flavanols content; Determination of ascorbic acid; Analysis of phenolics (profile) by RP-HPLC; Determination invitro of antioxidant activity by radical scavenging assay by using DPPH.

Conclusion. It's suspected that we would reach some bioactive compounds which have a vital role in human health (mainly antioxidant). They suffer from low-stability against the environmental condition. Thus, the encapsulation approach emerged to decrease their sensitivity and present a target delivery system. Generally, native carrier agents (polysaccharides and proteins) are being applied to embed the core materials. Besides, an application of these bioactive compounds in yoghurt and the study of the fortification's effect.

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