

Exploiting the potential of carob pods (*Ceratonia siliqua* L.) as a functional food ingredient: A review

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INTRODUCTION & AIM

The carob tree (*Ceratonia siliqua* L.), native to the Mediterranean basin, produces pods rich in dietary fiber, polyphenols, natural sugars and essential minerals. These bioactive compounds give carob pods beneficial health properties, notably for digestion, blood sugar regulation and chronic disease prevention. This poster explores the nutritional properties and potential applications of carob pods as a functional ingredient in the food industry.

Study objectives :

- Analyze the nutritional composition of carob pods.
- Identify the bioactive properties that make them interesting for human health.
- Explore the applications of carob and its by-products in functional foods.



METHOD

An exhaustive review of the scientific literature was carried out using Elsevier databases to identify studies on the bioactive composition of carob pods (*Ceratonia siliqua* L.) and their potential health effects. The articles included in this analysis had to deal with the dietary fibers, polyphenols, natural sugars and minerals present in carob, as well as their antioxidant, anti-inflammatory and anti-hyperglycemic properties. The data collected were synthesized to identify the main nutritional benefits of carob and explore its applications as a functional ingredient in the food industry.



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RESULTS & DISCUSSION

Composition of carob pods

- **Dietary fibers:** Soluble and insoluble, aiding digestion and regulating cholesterol.
- **Polyphenols:** Antioxidant properties, neutralizing free radicals and reducing inflammation.
- **Natural sugars:** Sucrose and fructose, energy sources with a low glycemic impact.
- **Minerals:** Calcium, potassium, magnesium, and iron, essential for bone and heart health.



Health effects

- **Anti-hyperglycemic:** Helps regulate blood sugar levels, beneficial for people with diabetes.
- **Antioxidant and anti-inflammatory:** Reduces the risk of cardiovascular diseases and cancers, alleviates inflammation.



Food applications

- **Carob flour:** Chocolate substitute, caffeine-free and rich in fiber.
- **Carob syrup:** Natural additive with a low glycemic index.
- **Dietary supplements:** Promotes digestive and metabolic health.



CONCLUSION / FUTURE WORK

Carob pods and their derivatives, such as carob flour and syrup, represent a valuable resource for the functional food industry. Their nutritional composition and health benefits make them a key ingredient for consumers seeking to improve their health through a natural diet.