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BEE POLLEN AND BEE BREAD AS SOURCE OF PROTEIN AND BIOACTIVE COMPOUNDS

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The need for diets with adequate amounts of proteins and essential amino acids is increasingly demonstrated. For chronic diseases such as diabetes, cardiovascular disease, cancer and neurodegeneration, dietary interventions can sometimes serve as a treatment strategy. This request is important even for other target populations such as malnourished children or the elderly, but also vegetarians and/or athletes. For all these situations, meat, fish and eggs are available on the market as sources of protein, but in vegetarian and/or calorie-restricted eating plans it is always a problem to find sources of protein, so we must consider looking for new options. Both bee pollen and bee bread are, depending on the botanical origin, a possible choice. These products are also a source of minerals and vitamins, providing added value to complement an unbalanced diet and boost the immune system. Many other constituents of these two bee products can also be used in drug discovery to develop new medicines and/or contribute to other therapeutic strategies. The best known are phenolic and polyphenolic compounds with anti-inflammatory and antioxidant bioactivity, among many other applications. More recent research reveals that bee pollen and bee bread are also good sources of spermidines. These compounds have emerged as well-tolerable calorie restriction mimetics targeting several age-associated molecular and physiological adversities. To ensure that all possible applications of these two products obtain the best final result, product quality control must be guaranteed. For Bee Pollen, the ISO standard was already completed in 2023, ISO 24382:2023- Bee pollen — Specifications. Currently, the same group (ISO/TC 34/SC 19/WG 3) has started working on the Project ISO/AWI 25097 - Management standards for the production and packaging of bee pollen. Additionally, they intend to propose a new project related to Bee Bread. Another advance was a compilation of Standard Methods that can be used for analytical control (https://www.tandfonline.com/doi/pdf/10.1080/00218839.2021.1948240), published by the Bee Pollen Working Group of the International Honey Commission in 2021. In conclusion, conditions exist to allow bee pollen and bee bread to be high- quality dietary products.

Keywords: amino acid, flavonoid, ISO, nutrition, spermidine, standard

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