PP-327 [Apitherapy]
Impact of bee products in managing pathologies

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Bee products are inexhaustible sources of bioactive molecules. There are extensively used in folk medicine for the prevention and self-treatment of several diseases and has become actually the objective of many scientific investigations. Different biological and pharmacological effects of honey, propolis and bee pollen have been referred to their antioxidant, antibacterial, antitumoral, anti-inflammatory agents, antihyperglycemic effect and renal disease protection. Oxidative stress is believed to be responsible for the occurrence of several pathologies. We have shown that honey, propolis, bee pollen and royal jelly have antioxidant and anti-inflammatory properties.

Phytochemical analysis of propolis, honey and pollen extracts showed the presence of several natural antioxidants belonging to different chemical groups: flavonoids, phenolic acids and stilbens. These may be responsible for the documented efficacy of several extracts in protecting biochemical characteristics and enzymatic activities of kidneys and liver tissues from alterations induced by xenobiotics. Overall, daily intake of propolis and/or honey or bee pollen could offer promising protective effects on hepatic and renal functions, as well as maintaining the redox homeostasis. Scientific reports from our laboratory have shown that bee products have a wide chemical composition and multi-functional properties. In this context, and in order to understand the relationship between biomolecules from beehive products and their functional potential, we investigated the antioxidant properties of these bee products, their capacities for preventing lipid peroxidation and scavenging free radicals was generally correlated with their phytochemical screening. It was also shown that simultaneous treatment with honey, propolis or bee pollen extract alone or in association prevented changes caused by gentamicin administration and improved hepatic and renal functions. Changes caused by gentamicin administration, observed by in vivo experiments, include significant elevation of uric acid, urea, creatinine, and hepatic enzyme levels (ALT, AST, and ALP) and kidney biochemical changes (an increase of urea, uric acid, and creatinine and a decrease of albumin and total protein) as well as remarkable changes of renal and liver oxidative stress markers (CAT, GPx, and GSH) and elevation of MDA levels.

Bee products might be useful in the management of several diseases. These results pave the way for controlled clinical studies.