

Envisioning the Exploitation of Propolis in the Food Industry

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Abstract—The present consumer is highly aware regarding the ‘clean’ ingredient labeling thereby the demand for natural constituents is increasing gradually. Thus, considerable attention is being conferred to natural bio-products obtained from agricultural sectors such as horticulture, apiculture, animal husbandry and aviculture. Propolis, one of the bio-products of apiculture industry, is a resinous material produced by the honeybees from numerous tree species such as poplar, eucalyptus, acacia, alder, clusia and birch. Bees produce it to provide structural stability and thermal insulation to the hive and making them more defensible by narrowing the entrance for external invaders. Due to the presence of various bioactive compounds, propolis possesses versatile pharmacological effects such as immunostimulatory, antimicrobial, antiviral, antioxidative, anti-carcinogenic, anti-inflammatory and anti-allergic properties. These properties also make it a potential additive for the food preservation. However, it cannot be used directly in the food products because of the presence of contaminants such as waxes and hazardous substances. Therefore, it is generally purified through solvent extraction using solvents like ethanol, water or a combination of both. This reduces the extent of contaminants making the extract rich in bioactive compounds. Food utilization of the propolis extract can involve direct immersion of the product in it or incorporation of the extract as an ingredient. It can also be used as a natural edible coating thus facilitating the preparation of biodegradable and antimicrobial packaging films. A disadvantage of propolis is its unique flavor and aroma, which may negatively alter the sensory properties of foods. Worldwide, propolis has gained tremendous popularity due to its highly beneficial properties but a lot of work needs to be done regarding its utilization at national level.