

flavors, aromas, and colors, but also engages in the formation of complex compounds that can significantly influence nutritional, functional, bioactive properties.

Furthermore, understanding the kinetics of the Maillard reaction allows for better control in industrial processing, where consistency, safety, and quality are paramount, enabling the production of superior products that meet main demands for bioactives, taste and nutritional profile.

Synergy of bee products with medicinal herbs

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Introduction. Honey has been treasured for centuries, not just as a sweetener and food but also for its diverse medicinal properties. Bee products promote healing through reducing inflammation, enhancing circulation, and inducing a healthy immunological response. This golden elixir, produced by bees from the nectar of flowers, is often praised for its antioxidant, antibacterial, and anti-inflammatory effects. When combined with medicinal herbs, honey can enhance healing, boost immunity, and preventing of diseases. To understand the synergy between honey and herbs, it's essential to recognize the healing properties of honey. Raw honey contains a plethora of nutrients, including vitamins, minerals, enzymes, bioactives, and antioxidants. The primary active compounds in honey, such as hydrogen peroxide, flavonoids, and phenolic acids, contribute to its health benefits. They not only combat oxidative stress but also can help soothe coughs and sore throats, aid digestion, enhance immune system and skin health. Furthermore, honey's natural antifungal and antibacterial properties make it an excellent skin wound healing. Medicinal herbs have played a crucial role in traditional medicine for thousands of years. From Ayurveda to traditional Chinese medicine, herbs like ginger, turmeric, echinacea, and garlic have been used for their therapeutic benefits. Each herb comes loaded with its distinct set of properties, acting as natural remedies for various health conditions.

When combined with honey, these herbs can deliver enhanced benefits by working synergistically to promote health and healing.

The aim of the study. This article delves into the synergy between honey and various medicinal herbs, exploring their combined effects and benefits.

Materials and methods. Raw honey and infused honey with herbs, fresh and dry products, from local region.

Results and their discussion. Turmeric *Curcuma longa* and honey. Turmeric contains curcumin, a powerful anti-inflammatory compound. When mixed with honey, the two create a potent remedy for various inflammatory conditions, such as arthritis and digestive disorders. A simple concoction of turmeric powder, and honey can support overall health, providing relief from colds and flu while enhancing liver detoxification.(For maximal effect the mixture need in additional bioactive.)

Ginger *Zingiber officinale* and honey. Ginger is traditionally used to cold , cough and digestive problems. In combination with honey, it becomes a soothing syrup that can relieve sore throats and coughs. This complex can also help with weight management due to their ability to boost metabolism. A warm cup of ginger tea sweetened with honey is an excellent remedy for cold winter months.

Echinacea *Echinacea purpurea* and honey. Echinacea is known for its immune-boosting properties, making it one of the go-to herbs during cold and flu season. Mixing echinacea tincture or dried herb with honey creates a sweet elixir that can enhance the body's defenses against infections. Regular consumption can reduce the severity and duration of respiratory infections.

Rosemary *Salvia rosmarinus* and honey. Rosemary is packed with antioxidants and has been linked to improved memory and concentration. Honey infused with dried rosemary can serve as a flavorful yet health-promoting syrup that aids cognitive function and provides a delightful addition to tea or dishes.

Garlic *Allium sativum* and honey. Garlic, known for its antimicrobial and heart health-promoting properties, become more active when mixed with honey. This combination not only masks the pungent taste of garlic but also creates an immune-supportive tonic that can help ward off infections and improve cardiovascular health.

Conclusion. While the combination of honey and medicinal herbs can yield remarkable health benefits, it's essential to consider allergies and possible interactions with medications. Additionally, not all honey is created equal. Opting for raw, organic honey ensures that you're receiving a large spectrum of bioactives, nutrients and benefits. Always consult with a healthcare professional before starting any new health regimen, especially if you are pregnant, nursing, or have underlying health conditions. (*Ref. Active Substances And Bioactive Properties Of Honey With Propolis VII Intern. Scientific and Practical Conf. "Medicines for humans" 2024*).

Formulation and Efficacy Assessment of a Novel Probiotic Gel Against Antibiotic-Resistant Opportunistic Pathogens

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The problem of antibiotic resistance (ABR) is becoming increasingly prevalent worldwide, posing a serious threat to public health. The uncontrolled use of antibiotics in medicine, agriculture, and other industries has led to the emergence and spread of bacteria resistant to multiple antibiotics. Among these, particular attention is drawn to opportunistic pathogenic microorganisms (OPMs), which are normally part of the human microbiota but can cause infectious diseases under certain conditions.

OPMs, such as *Pseudomonas aeruginosa*, *Escherichia coli*, *Staphylococcus aureus*, and others, frequently exhibit resistance to a broad spectrum of antibiotics. This complicates the treatment of infections caused by these microorganisms, increases the duration of hospitalization, the cost of treatment, and the risk of complications. Individuals with weakened immune systems, the elderly, patients who have undergone surgical interventions, and those who have been in medical facilities