



NUTRACEUTICAL: - IS SPECIAL REFERENCE TO HONEY

KRITI JAISWAL^{1*}, ADITYA GUPTA², JAYANT KUMAR MAURYA³,

1. Kriti Jaiswal*, Ashok Singh Pharmacy College Maharoopur Jaunpur U.P. 222180

2. Assistant Professor, Department of Pharmacology Ashok Singh Pharmacy College Maharoopur Jaunpur U.P.
222180

3. Principal, Ashok Singh Pharmacy college Maharoopur Jaunpur U.P. 222180

*Corresponding Author: **KRITI JAISWAL**

Abstract:

Since the beginning Over the ages, honey has grown to be one of the most important and beloved natural products on the planet. Honey is used as an addition to food and in conventional medicine to treat a range of clinical conditions, including cancer. treatment to promote healing of infections. The primary goal of this review is to showcase honey's numerous medicinal uses. For a very long time, honey has been used as a nutritional supplement and to treat a wide range of ailments, such as, TB eczema, eye diseases hepatitis, piles, throat infections, and worm infestation. The constituents of honey have been associated with antioxidant, antibacterial, anti-inflammatory, antiproliferative, antitumor, and antimetastatic activities. Several studies suggest that honey may be useful in treating wounds, diabetes, asthma cancer, and a variety of other ailments such as digestive, neurological, and cardiovascular issues. Honey possesses anti-inflammatory, antioxidant, and phytochemical characteristics that make it useful in medicine.

Keywords: Polyphenols, honey, flavonoids, antioxidants, traditional medicine.

Introduction:

A natural product, honey is made by Apis mellifera, or honeybee (Apidae family) from the extract of flowers. people get been utilizing for honey approximately. Most ancient societies, including the Mayans, Greeks, Chinese, Romans, Egyptians, and Babylonians, drank honey for both nutritious and medicinal purposes. for 5,500 years. The only organically existing material made of bugs is honey, which has uses in nutrition, beauty products, manufacturing, and health. The honey is regarded as a Good nutrition and is enjoyed by people of all ages, including men and women. Honey can remain sealed and stored at a constant temperature in a dry place. and doesn't deteriorate, hence it doesn't require refrigeration. The pH of honey can value of about 3.9 and between 0.56 and 0.62 for water activity (WA).



Fig Honey

Honey's higher fructose amount it has 25% more sugar than tablet sugar. making it a well-liked natural sugar since prehistory. Furthermore, Honey is becom a more and more common ingredient in drinks. These days, a wide range of unidentified activities are suggested in general periodicals, journals, and brochures promoting natural products, along with information on honey's application as a treatment for numerous human ailments. Based on available data, honey has been shown to have several health benefits, such as Antiinflammatory, antioxidant, antibacterial, protective effects on the neurological system, respiratory, digestive tract, heart disease, and antidiabetic systems. Merely a small number of the numerous studies conducted on honey have been published. This study emphasizes the medicinal benefits of honey in the medical treatment of disorders. It is an exhaustive evaluation From the current writing.

Honey's Nutritious Value:

The main ingredients of honey are carbohydrates and water. Additionally, it has trace levels of a number of vitamins and minerals. Niacin, calcium, magnesium, copper, riboflavin, iron, and zinc and potassium in honey. A combination of phenolic acids and flavonoids can also be found in honey. These antioxidants help the body get rid of potentially harmful free radicals. Antioxidant levels in darker honeys are often somewhat higher than in lighter types.

Table 1.1 The Nutritious Value of Honey:

A component	On average
fructose	38.5g
Carbohydrates	82.4g
sucrose	1g

Glucose	31g
Dietary fiber	0.2g
Other sugars	11.7g
Protein	0.3g
Fat	0g
Rioboflavin (vit.B2)	.038m
Water	17.1g0
Vitamin C	0.5g
Niacin(vit. B3)	0.121mg

Composition of honey:

Approximately 95% of the honey's dry weight is made up of carbs, making them the primary ingredient. In addition to carbohydrates, honey has a wide range of other ingredients, including minerals, vitamins, proteins, amino acids, organic acids, and scent compounds. Recapitulating the information It is clear from Table 1 that honey makes up a very small portion of the daily recommended intake. However, the numerous physiological impacts make it significant in terms of nutrition. It should be highlighted that research on nutrition and physiology has rarely taken into account the fact the honey's content is highly dependent regarding its biological source. Dextrose and levulose are the two sugars that make up honey, which is simply a highly concentrated water solution of them with trace quantities of a minimum of 22 additional complicated socurse. Additionally, Honey has trace amounts of minerals, organic acids, flavorings, and colors.

Carbohydrates:

Glucose and fructose monosaccharides are the primary sugars. Furthermore, roughly 25 distinct oligosaccharides have been identified. The disaccharides trehalose, turanose, maltose, and sucrose are the main oligosaccharides in blossom honey, along with a few more including 1-kestose, 6-kestose, panose, and palatinose, which are nutritionally significant. Honeydew honey has larger concentrations Comprising melezitose and raffinose, two oligosaccharides than blossom honey. The two main carbohydrates that are consumed with honey during digestion are Glucose and Fructose, which swiftly absorbed entering the bloodstream for the body's use as fuel. Twenty grams of honey a day will provide roughly energy needed 3% of the daily.

Amino acids, proteins, and enzymes:

Free amino acids And enzymes make up the majority of the 0.5% of proteins in honey. That proportion adds very little to the total amount of protein consumed by humans. The three primary enzymes found in honey are the enzyme diastase, which degrades glucose or starch shorter sugar atoms; invertibrates (glucosidase), It converts fructose and glucose from sucrose; and glucose oxidase, which breaks down glucose producing gluconic acid and hydrogen peroxide.

Minerals, vitamins, and trace elements:

Honey has very little vitamin and mineral content, and it barely makes up a small portion of the suggested daily consumption (RDI) of the various trace elements. It recognized that Mineral and trace element content varies amongst unifloral honeys. From a nutritional perspective, selenium, manganese, and chromium are crucial, particularly for children aged one to fifteen. While no recommended RDI values exist for these elements, In addition, silicon, boron, cobalt, fluoride, iodide, molybdenum, and sulphur can be crucial for human nutrition.

Physical characteristics Honey:

its composition additionally flavor, honey has a number of other significant characteristics. The liquid form of freshly extracted honey is viscous. Because a wide range of substances affect its viscosity, fluctuates according to its composition, especially the amount of water in it. Another characteristic of honey is hygroscopicity, which refers to its ability to draw in and hold onto moisture from the air around them. Honey that is regular and has a water content of 18.8% or less will draw moisture from air that has The relative moisture higher than 60 percentage. The origin the Honey affects its surface tension, which is most likely caused by colloidal particles. In conjunction with elevated viscosity, it accounts for honey's foaming properties. Liquid honey can range in color from dark amber or black to clear and colorless (like water). All of the different hues of honey are essentially just variations of yellow and amber. Age, storage circumstances, and botanical provenance all affect color, but the amount of transparency or clarity of airborne particles, like pollen. Bright yellow (from sunflowers), reddish undertones (from chestnuts), grayish (from eucalyptus), and greenish (from honeydew) are less typical hues for honey. The white glucose crystals lead honey to become lighter in color once they have crystallized.

Usages for natural honey that are customary:

Stone Age drawings show that honey was used by humans approximately 8000 years ago. Ancient Chinese, Greek, Roman, Assyrian, and Egyptian healers used honey to treat wounds and intestinal disorders. Here is a summary of some of the health benefits of honey that prehistoric people used.

Honey in the Indian ayurvedic system:

The phrase "Ayurveda" is a compound word, consisting of the terms "life" or "life principle" (Ayus) and "a system of knowledge" (veda). So, "Ayurveda" basically corresponds to the "awareness of life." Honey was regarded by the ancient Vedic civilization as one of nature's greatest gifts to humanity. Ayurvedic writings state that honey is traditionally beneficial for people with weak digestion. Additionally, the benefits of using honey to cure annoying coughs have been highlighted. Experts in Ayurveda believe that honey is beneficial for maintaining healthy teeth and gums. Its hypnotic properties have led to centuries of use in the treatment of insomnia. Furthermore, conventional Ayurvedic professionals. suggest honey for skin conditions (burns and wounds), heart palpitations and pain, anemia, and all lung imbalances. Ayurvedic medicine has historically used honey to treat a variety of eye conditions. When applied to the eyes on a daily basis, it enhances vision. Additionally, honey is thought to as beneficial in preventing cataracts.

In ancient Egypt:

honey was the most often used medication, appearing 500 instances within 900 different cures. the recipe for a common wound salve found in the Smith Papyrus, an Egyptian manuscript derived from hieroglyphic symbols and dated to from 2600 to 2200 B.C.) specifies a blend of ftt (lint/fiber), byt (honey), and mrht (grease). Honey was a common ingredient in Egyptian treatments, along with milk and wine. Honey was sacrificed to the gods by the ancient Egyptians. Additionally, honey was utilized to embalm the deceased.

Ancient Greek honey:

A traditional Greek drink called oenomele is made with unfermented grape juice and honey. It is occasionally used as a folk cure for mental problems and gout. The celebrated Hippocrates Greek scientists suggested a simple diet that had honey in the forms of honey and vinegar, or oxymel, for pain relief, For thirst, use hydromel (water plus honey). relief, and a combination of honey, water, and several medications for severe fevers. Additionally, he used honey to treat and prevent scars, eye disorders, laxative action, baldness, wound healing, topical antiseptis, cough, and sore throat.

Pharmacological and therapeutic properties in Honey:

Honey possesses traditionally been utilized as a therapeutic throughout numerous cultures. But because there isn't much research on it, its application in medicine is restricted. The honey is increasingly being acknowledged as a reliable and efficient medicinal substance. Its antibacterial, anti-inflammatory, antioxidant, and immune-system-boosting properties have all been linked to its positive effects.

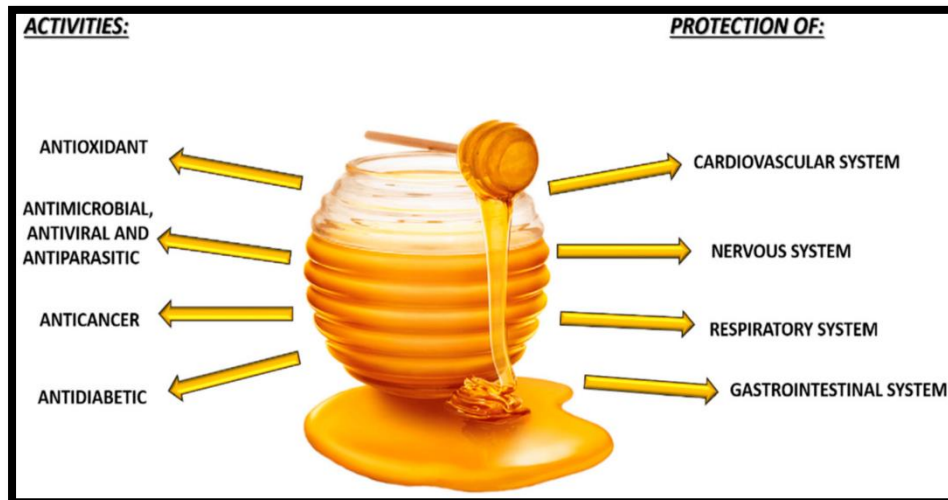


Fig Pharmacological and therapeutic properties in honey

It has been demonstrated that honey possesses antimicrobial qualities:

Honey inhibits a wide range of bacterial species. A variety Many bacterial species, including Gramme positive and negative, anaerobes, and aerobes, are inhibited by the alcohol extracts in the honey. Honey possesses potent antibacterial properties that can eradicate both pathogenic and non-pathogenic microorganisms, such as fungi and yeasts, even those that have become resistant to multiple drugs. The antimicrobial actions may exhibit either bactericidal or bacteriostatic properties, contingent upon the used concentration.

Honey extracts in methanol, ethanol, ethyl acetate as well as shown by Mohapatra. to have antibacterial action against Both and Gram-negative Gram-positive bacteria, such as Bacillus subtilis and Staphylococcus aureus, Bacillus cereus, Enterococcus faecalis, and Micrococcus luteus. Salmonella typhi, Pseudomonas aeruginosa, and Escherichia coli are the bacteria. Numerous bacterial infections have become resistant to antibiotics that were first used in medical settings. Wound infections were destroyed by 4.0–14.8% honey, which is a honey of the medical kind, even if it has a lot of natural or acquired resistant bacteria. that can be sustained in the wound environment in terms of concentration. Conditions that rapidly produced antibiotic resistance could not be used to induce resistance to honey.

The anti-oxidant property of honey:

Although honey has long been used for household and medicinal purposes, its antioxidant properties have only lately gained attention. As the need for antioxidant supply grows, Honey is gaining popularity in food as an antioxidant source [35]. The generation of free radicals and the body's natural defense mechanisms don't balance out chemically, causing oxidative stress, which damages cells and modifies genetic structure.

There has been a lot of research done on the molecular mechanisms underlying the transition of normal cells into cancer cells caused by tumor promoters. Nevertheless, research has shown that the signaling pathways for MAP kinases, or mitogen-activated proteins, are triggered to different tumor-promoting chemicals. Epidermal growth factors (EGF), 12-O-tetradecanoylphorbol-13-acetate (TPA), and ultraviolet light, and arsenic are examples of tumor promoters that activate membrane receptors, which in turn trigger different Mitogen-Activated Protein Kinase cascades of (MAP). Factors involved in transcription having A shown part in the development of cancer are regulated by MAP kinase cascades. Cellular reactions could include survival, growth, multiplication, apoptosis, cell cycle regulation, inflammation, and variation.

Honey and diabetics:

Levulose (38%) and Dextrose (31%), and roughly sucrose 1.3% make up a healthy amount of sugars in honey. Following intestinal hydrolysis, cane sugar generates 52.5 percent of every sugar. Since honey has a similar sweetness to granulated sugar when measured by weight, a diabetic may be able to obtain greater sweetening power from honey the "price" of dextrose is lower. than from sugar crystals. consequences Research has demonstrated that in both type I diabetics and normal volunteers, honey consistently results in fewer glycemic effects when compared to glucose and sucrose. Additionally, studies have shown that eating for breakfast, honey or sucrose does not cause any greater immediate hyperglycemic impact compared to isoglucidic bread consumption among individuals with type II diabetes. In people with type 1 diabetes, honey had lower incremental and glycemic indices than glucose and sucrose.

Honey's ability to heal wounds:

An accident-related wound is an injury to the body. violence, or operations that usually causes a laceration or membrane to break, such as the the epidermis and usually entails damage to tissues beneath the surface. It results in hypoxia, extravasations of blood components, disruption of blood vessels, and tissue damage. Patients suffer negative consequences from the emergence of wound infections, including increased pain, discomfort, and inconvenience as well as a risk of serious disease or even death. Additionally, it impedes the healing process, which results in longer hospital stays and higher The price of treatment in terms of time, bandages, and antibiotics. Both extrinsic (microorganisms) and endogenous (pathophysiology) variables can influence how well a wound heals. The more conducive the local environment is for bacterial invasion and proliferation, the higher the risk of wound infection.

Cough with honey:

Honey is widely used in traditional medicine for treating fever, coughing, as well as swelling. Honey's capacity to lessen asthmatic symptoms or function as a preventative measure to avoid the Asthma induction was shown. In

simulations involving animals, oral honey ingestion was employed. as a treatment for both bronchial asthma and chronic bronchitis. Additionally, a research by Kamaruzaman. demonstrated that administering honey to treat ovalbumin-induced airway inflammation decreased histopathological changes associated with asthma in the airway and prevented the emergence of asthma. It was additionally spotted that inhaling honey efficiently eliminate goblet cell hyperplasia that secretes mucus. Nevertheless, more research is required to fully understand the mechanisms underlying honey's ability to alleviate symptoms of asthma.

In summary

The natural, sweet, viscous material known as honey is made through honeybees. consumed as a dish, often long been used as a medicine and as a sweetener. Honey possesses simple sugars that pass through digestion and are immediately taken into the circulation. Honey's ability to absorb moisture prolongs the shelf life of baked goods including breads, cakes, and candies. The high concentration of sugar and its subsequent osmotic effects, together with its low acidity, low pH, and hydrogen peroxide are The reasons behind honey's characteristics that strengthen the immune system, reduce inflammation, and. Despite The remarkable history of Honey's usage as a medication, a number of investigations revealed significant change in both the composition and therapeutic applications of honeys derived from various flowers. Therefore, standardization and quality control are necessary if honey is to be employed as a therapeutic agent.

REFERENCE

1. Allsop KA, Miller JB: Honey revisited: A reappraisal of honey in preindustrial diets. *Br J Nutr* 75:513-520, 1996.
2. Potschinkova P: „Bienenprodukte in der Medizin. Apitherapie.“ München: Ehrenwirth Verlag, 1992.
3. Cherbuliez T, Domerego R: „L'Apitherapie.“ Bruxelles: Amyris SPRL, 2003. 8
4. Molan P: Why honey is effective as a medicine. 1. Its use in modern medicine. *Bee World* 80:79-92, 1999.
5. Mid-Atlantic Apiculture Research & Extension Consortium (MAAREC) (2004) HONEY. New Jersey.
6. Manyi-Loh CE, Clarke AM, Ndip RN (2011) An overview of honey: Therapeutic properties and contribution in nutrition and human health. *African Journal of Microbiology Research* 5: 844-852.
7. Carter DA, Blair SE, Irish J (2010) An Investigation into the Therapeutic Properties of Honey: Rural Industries Research and Development Corporation, Sydney.
8. Osato MS, Reddy SG, Graham DY (1999) Osmotic effect of honey on growth and viability of *Helicobacter pylori*. *Dig Dis Sci* 44: 462-464.
9. Gethin GT, Cowman S, Conroy RM (2008) He impact of Manuka honey dressings on the surface pH of chronic wounds. *Int Wound J* 5: 185-194.
10. Hassanein SM, Gebreel HM, Hassan AA (2010) Honey Compared with Some Antibiotics against Bacteria Isolated From Burn-wound Infections of Patients in Ain Shams University Hospital. *Journal of American Science* 6: 301-320.
11. Robson V, Dodd S, Homas S (2009) Standardized antibacterial honey (Medihoney) with standard therapy in wound care: randomized clinical trial. *J Adv Nurs* 65: 565-575.
12. Simon A, Gofka K, Wiszniewsky G, Blaser G, Bode U, et al. (2006) Wound care with antibacterial honey (Medihoney) in pediatric hematologyoncology. *Support Care Cancer* 14: 91-97. 10. Subrahmanyam M (1991) Topical application of honey in treatment of burns. *Br J Surg* 78: 497-498.
13. White JW (1979) Composition of honey. In *Honey: A Comprehensive Survey*. London Heinemann: Heinemann.
14. Gupta SK, Singh H, Varshney AC, Prakash P. *Indian J Anim Sci* 1992; 62(6):521-523.
15. Dashora N, Sodde V, Bhagat J, Kirti SP, Labo R. Antitumor activity of *Dendrophoe falcate* against Ehrlich ascites carcinoma in Swiss albino mice. *Pharm Crops*. 2011;7:1.

- 16.** Adebolu TT. Effect of natural honey on local isolates of diarrhea causing bacteria in Southwestern Nigeria. *Afr J Biotechnol.* 2005;4:1172–4.