



## Human Diseases Treatment With Natural Honey

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Honey is a natural product that has been widely used for its therapeutic effects. It has been reported to contain about 200 substances. Honey is composed primarily of fructose and glucose but also contains fructo-oligosaccharides and many amino acids, vitamins, minerals and enzymes. The composition of honey varies depending on the plants on which the bee feeds. However, almost all natural honey contains flavonoides (such as apigenin, pinocembrin, kaempferol, quercetin, galangin, chrysin and hesperetin), phenolic acids (such as ellagic, caffeic, p-coumaric and ferulic acids), ascorbic acid, tocopherols, catalase (CAT), superoxide dismutase (SOD), reduced glutathione (GSH), Millard reaction products and peptides. Most of those compound works together to provide a synergistic antioxidant effect.

Honey has had a valued place in traditional medicine for centuries. However, it has a limited use in modern medicine due to lack of scientific support. For a long time, it has been observed that honey can be used to overcome liver, cardiovascular and gastrointestinal problems. Ancient Egyptians, Assyrians, Chinese, Greeks and Romans employed honey for wounds and diseases of the intestine. Since a few decades ago, honey was subjected to laboratory and clinical investigations by several research groups. The most remarkable discovery was antibacterial activity of honey that has been mentioned in numerous studies. Natural honey exhibits bactericidal activity against many organisms including Salmonella, Shigella, Escherichia coli Helicobacter pylori, etc. In an inflammatory model of colitis, honey was as effective as prednisolone treatment. Research has also indicated that honey may possess anti-inflammatory activity and stimulate immune responses within a wound. Al-Waili and Boni demonstrated anti-inflammatory effects of honey in human after ingestion of honey. Honey,

interestingly, has been shown to prevent reactive oxygen species (ROS)-induced low density lipoprotein (LDL) oxidation in some in vitro studies, thus exhibiting beneficial cardiovascular protection. Honey also had antineoplastic activity in an experimental bladder cancer. This article has reviewed important traditional and modern uses of natural honey in human diseases.

Natural honey contains about 200 substances, including amino acids, vitamins, minerals and enzymes, but it primarily contains sugar and water. Sugar accounts for 95–99% of honey dry matter. The principal carbohydrate constituents of honey are fructose (32.56 to 38.2%) and glucose (28.54 to 31.3%), which represents 85–95% of total sugars that are readily absorbed in the gastrointestinal tract.

Other sugars include disaccharides such as maltose, sucrose, isomaltose turanose, nigerose, meli-biose, panose, maltotriose, melezitose. A few oligosaccharides are also present. Honey contains 4 to 5% fructooligosaccharides, which serve as probiotic agents. Water is the second most important component of honey. Organic acids constitute 0.57% of honey and include gluconic acid which is a by product of enzymatic digestion of glucose. The organic acids are responsible for the acidity of honey and contribute largely to its characteristic taste. The concentration of mineral compounds ranges from 0.1% to 1.0%. Potassium is the major metal, followed by calcium, magnesium, sodium, sulphur and phosphorus. Trace elements include iron, copper, zinc and manganese.

Nitrogenous compounds, vitamins C, B1 (thiamine) and B2 complex vitamins like riboflavin, nicotinic acid, B6 and panthothenic acid are also Honey contains proteins origin.