

## A HOLISTIC REVIEW OF HONEY (ASAL) IN GYNAECOLOGICAL DISORDERS (AMRĀḌ-I NISWĀN) - A UNANI PERSPECTIVE

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### ABSTRAK

Madu adalah salah satu keajaiban alam. Allah SWT telah menyebutkan dalam Al-Qur'an Surat 16 ayat 68, '...Dari perut mereka keluar minuman yang bermacam-macam warnanya, yang di dalamnya terdapat obat yang menyembuhkan bagi manusia. Nilai madu juga disebutkan dalam beberapa hadits. Diriwayatkan dari Abu Hurairah, Nabi SAW bersabda, "Tidak ada satu penyakit pun yang diciptakan Allah, kecuali Dia juga menciptakan obatnya." Jabir bin Abdullah melaporkan: Saya mendengar Nabi SAW bersabda, "Jika ada kesembuhan pada obat kalian, maka itu adalah bekam, seteguk madu, atau dibakar dengan api (kauterisasi) yang sesuai dengan penyakitnya, tetapi saya tidak suka dibakar dengan api." Madu diproduksi di sebagian besar negara di dunia. Madu telah digunakan sebagai obat penting dalam Unani, Ayurveda, dan obat-obatan tradisional selama berabad-abad. Telah terbukti bahwa meskipun madu itu manis, jika dikonsumsi dalam dosis yang tepat sebagai obat, madu tidak membahayakan pasien diabetes. Madu memiliki berbagai khasiat, seperti anti oksidan, anti bakteri, anti virus, anti jamur, anti inflamasi, dan masih banyak lagi. Madu dapat dikonsumsi sebagai multivitamin dan juga sumber energi. Telah terbukti efektif dalam berbagai masalah ginekologi seperti dismenore, keputihan, menoragia, perdarahan uterus yang tidak normal, ketidaksuburan pada kedua jenis kelamin, dan penyakit lainnya. Hal ini juga memperkuat ovarium dan rahim. Oleh karena itu, madu merupakan obat yang efektif dan terbukti secara ilmiah.

Kata kunci : Alquran, bekam, madu, kelainan ginekologi

### ABSTRACT

Honey is one of nature's wonders. Allah Almighty has mentioned in the Holy Quran in Chapter 16 verse 68, '*... There emerges from their bellies a drink, varying in colour, in which there is healing for people.*' The value of honey is mentioned in several hadiths, too. Narrated Abu Huraira: The Prophet (PBUH) said, "*There is no disease that Allah has created, except that He also has created its treatment.*" Jabir bin Abdullah reported: I heard the Prophet (PBUH) saying, "*If there is any healing in your medicines, then it is in cupping, a gulp of honey, or branding with fire (cauterization) that suits the ailment, but I don't like to be (cauterized) branded with fire.*" Honey is produced in most of the countries in the world. It has been used as a vital medicine in Unani, Ayurveda, and traditional medicines for centuries. It has been proven that even though honey is sweet, if taken in the right dosage as medicine, it does not harm diabetic patients. Honey has various properties, like anti-oxidant, anti-bacterial, anti-viral, anti-fungal, anti-inflammatory, and many others. It can be consumed as a multivitamin as well as a source of energy. It has been proven to be effective in various gynaecological problems like dysmenorrhoea, leucorrhoea, menorrhagia, abnormal uterine bleeding, infertility in both genders, and other ailments. It also strengthens the ovaries and uterus. Hence, honey is an effective prophetic as well as scientifically proven medicine.

**Keywords:** *Holy Quran, Cupping, Honey, Gynaecological disorders.*

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## 1. INTRODUCTION

Women play a vital role in our communities. A healthy family, society, and nation will all be ensured by healthy women (WHO). Women's health encompasses a wide range of aspects, including mental, physical, social, cultural, and spiritual well-being. Sociopolitical, economic, and biological issues all have an impact on women's health. While health concerns and issues affect people of both sexes, women's health is more important to focus on because women, especially girls, face unique challenges because of their gender and the expectations placed on them by society in terms of roles and responsibilities.<sup>1</sup>

Vernaculars of Bees Honey:

Arabic: *'Asl* or *Asl – un Nahal*<sup>2,3</sup>; Persian: *Angabān*<sup>2</sup> or *Shehdaan*<sup>3</sup>; Urdu: *Shehed*<sup>2,3</sup>; Hindi: *Madhu*<sup>2</sup>; Tamil: *Thain paani*, Sinhala: *Mee peni*<sup>4</sup>

Due to its nutritional and medicinal qualities, honey is a naturally occurring commodity that is extensively utilized. A process of dehydration inside the bee hive concentrates the upper aerodigestive tract of the bee, which produces honey as a byproduct.<sup>5</sup> Stone Age paintings indicate that honey was first used by humans approximately 8000 years ago.<sup>5,6</sup> (The artwork, which shows two honey hunters gathering honey from the honeycomb, provides evidence. The cave painting is in Valencia, Spain, preserved in a Mesolithic rock). It is regarded as the earliest proof of human honey collection in history.<sup>3</sup>

The Holy Quran, the Talmud, the Bible, and numerous other sacred scriptures from Persia, China, Egypt, and India all mention honey as a food that promotes health. Since ancient times, it has been utilized as food and medicine. While frequently claimed as a superfood, according to Dixon, it is said to cure a wide range of illnesses, including arthritis, aging, and the common cold.

The therapeutic properties of honey have been documented in several ancient sources, including Sumerian clay tablets of 6200 BC, Vedas from over 5000 BC, Egyptian papyri of 1900–1250 BC, numerous religious scripts, and the writings of the renowned Greek scientist Hippocrates (460–357 BC). (2) A low-key diet was recommended, favoring the use of honey in the forms of oxymel (vinegar and honey) for pain, hydromel (water and honey) for thirst, and a concoction of honey, water, and various medicinal substances for acute fevers. Honey was also used for baldness, wound healing, cough and sore throat, eye diseases, scar prevention, as a laxative, and topical antiseptics.<sup>5</sup>

## 2. DiSCUSSION

Ever since prehistoric times, honey has been a vital component in various systems worldwide. For instance, in,

- **Ayurveda:** Honey was utilized in traditional Ayurvedic medicine for more than 4,000 years, since it was considered to be beneficial in correcting material imbalances in the body.<sup>7</sup> It is said to be beneficial for those who suffer from poor digestion, an irritating cough, healthy teeth and gums, treatment for insomnia (hypnotic action), skin conditions (burns and sores), cardiac pain and palpitation, all types of imbalances of the lungs, anemia, and a variety of eye conditions. It enhances vision and prevents cataracts when applied to the eyes on a daily basis.<sup>5</sup>
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- **Ancient Egypt:** Out of 900 remedies, it has been referred to 500 times. In addition to wine and milk, honey was a common ingredient in almost all Egyptian medications, used for embalming the dead, as a topical ointment for treating infected wounds (antibacterial properties), etc.<sup>5,7</sup>
- **Ancient Greece:** Consuming honey was thought to extend one's life.<sup>7</sup> It is used as a folk remedy for gout and some neurological conditions.<sup>5</sup>

### **Honey in the Quran and Sahih Hadith:**

The importance and usefulness of honey are evident from the Holy Quran revealed by Allah, the Almighty, more than 1400 years ago. The Noble Qur'an and many prophetic narrations refer to honey as a great healer of diseases.<sup>5</sup> There is an entire Chapter (*surah*) in the holy Qur'an called '*Al-Nahl*' ('The Bee').

**Allah Almighty** mentions in the Holy Quran in Chapter 16, *Surah al-Nahl* (The Bee), in verses 68 and 69, '**And thy Lord taught the Bee to build its cells in hills, on trees, and in (men's) habitations;**' (verse 68) '**Then to eat of all the produce (of the earth), and find with skill the spacious paths of its Lord: there issues from within their bodies a drink of varying colours, wherein is healing for men: Verily in this is a sign for those who give thought.'**' (verse 69)<sup>8</sup>

### **Honey in the Hadith:**

Narrated Jabir: The Messenger of Allah (ﷺ said), "**Every disease has a cure. If a cure is applied to the disease, it is relieved by the permission of Allah Almighty.**"<sup>9,10</sup>

Narrated Ibn `Abbas: The Prophet (ﷺ said), "Healing is in three things: a gulp of honey, cupping, and branding with fire (cauterizing)." But I forbid my followers to use branding with fire (cauterization).<sup>10</sup>

Abdallah Ibn. Mas'ud reported God's messenger as saying: "Make use of the two remedies: honey and the Qur'an."<sup>11</sup>

## According to Unani System of Medicine

Honey is one of the well-known functional foods, or *Ghidha'Dawa'i*.<sup>2</sup>

*Asl khalis* (Honey) has been used to treat internal and external illnesses much before the history of medicine. Honey is a natural substance that is extensively utilized due to its healing properties. Additionally, it is used as the base in numerous preparations in the Unani system of medicine, serving as a nutritional supplement and preservative. In classical Unani medicine, the varieties of honey were distinguished based on their organoleptic characteristics.<sup>12</sup>

Almost a millennium ago, in the Canon of Medicine, Avicenna referred to honey as '*Asl-al-Naḥl* (honey of the bees). In addition, he had suggested honey as one of the greatest treatments for tuberculosis.<sup>2,5</sup>

Ibn Zuhr (1091-1162 AD) stated that the best honey is almost transparent, free of suspended particles, has a moderate viscosity, and has a pleasant aroma. He listed different kinds of honey according to their aroma, such as rose, thymus, asafoetida, etc. Furthermore, he recommended honey as a remedy for wounds.

Ali Ibn Abbas Majusi (the 10th-century physician) had mentioned that the elderly can benefit greatly from honey since it aids in the formation of healthy humors in their bodies.

According to Ibn Rushd (1126–1198), honey is said to dislodge adherent pathological humors and cleanse passages, especially the digestive and respiratory tracts.

According to Zakariya Razi (Rhazes, 865-925 AD) (*Al-Ḥawā'ī fi al-Ṭib encyclopedia vol-23*) (The Comprehensive Book on Medicine), honey has been used for wound healing, skin conditions (ringworm, melasma), tonsillitis, diphtheria, as an antitoxin (opium, dog bites), and as an embalming fluid.

According to Aḥmad al-Ḥasan Jurjani (12th century AD), honey can be used to treat a variety of conditions, including gout, arthritis, gastritis, hepatitis, oral disorders, and wound healing.

Ibn Rushd (Averroes, 1126–1198) stated that honey eliminates the adherent morbid humors and purifies channels, especially the respiratory and digestive tracts.

Honey has anti-infective properties, as reported by Ibn Hubal Baghdadi (1122–1213 AD), who recommended inhaling it to treat respiratory infections.<sup>2</sup>

## Physical Properties of Natural Honey

- Viscous liquid (freshly extracted honey). Viscosity is dependent on a wide range of substances; hence, it changes depending on the composition, especially the water content.
- Hygroscopicity is the ability of honey to absorb and retain moisture from the atmosphere. When the relative humidity of the air is above 60%, normal honey, which has a water content of 18.8% or less, will absorb moisture.
- The surface tension of honey is likely due to colloidal substances and hence differs with the source of the honey.<sup>5</sup>
- **Colour:** Liquid honey can range in colour from clear and colourless (like water) to dark amber or black. Essentially, every colour is a variation of yellow or amber. Colour is

- influenced by the botanical source, age, and storage conditions, while transparency or clarity is determined by the quantity of suspended particles, such as pollen. Bright yellow (sunflower), reddish undertones (chestnut), greyish (eucalyptus), and greenish (honeydew) are less prevalent colours.<sup>5</sup> When honey crystallizes, it becomes lighter in color as the glucose crystals are white.<sup>2,5,12</sup>
- The crystallization of honey is caused by the production of monohydrate glucose crystals, which differ in quantity, form, dimension, and quality depending on the composition of the honey and storage circumstances. The rate of crystallization increases with decreasing water content and increasing glucose content in honey.<sup>5</sup>
  - **Taste and odor:** Sweet and distinct odor. The best asl, according to Descoridus, is fragmatic, extremely sweet, tasty, and red.<sup>3</sup> Because it contains a significant amount of fructose, it is 25% sweeter than table sugar.<sup>13</sup> A study mentions fructose, which is a main component of the sugar content of honey, as being sweeter than glucose. In a hadith, the Prophet (ﷺ) has recommended taking honey as well as mentioned it to be the sweetest food.<sup>14</sup>
  - **Specific gravity:** 1.37 – 1.4 (5) (1.36 kg/L) (3,13) (40% denser than water)<sup>15</sup>
  - **pH:** 3.2 to 4.5 (acidic)<sup>5</sup>
  - High osmotic pressure and low water content.<sup>15</sup>

**Storage of Honey:** Honey doesn't spoil; it doesn't require refrigeration; and it can be preserved at room temperature in a dry cupboard. It is one of the traditional foods that is still in use to this day and can also be found in King Tut's tomb.

### Chemical Composition of Natural Honey

Depending on their floral sources, geographic distribution, climate, environmental variables, and post-harvest practices like processing, handling, and storage, about 300 different types of honey are currently recognized.<sup>2</sup>

Depending on the plant source, honey has an extremely complex chemical composition.<sup>5</sup> It is said to contain over 200 different substances.<sup>5,12</sup>

The plants that bees feed on determine the content of honey they produce.<sup>5</sup>

#### **Mizāj (Temperament):**

- Hārr 1<sup>0</sup> & Raṭb 1<sup>0</sup>.
- Fresh Honey: Hārr (Hot) 1<sup>0</sup> & Yābis (Dry) 2<sup>0</sup>.
- Few days old: Hārr (Hot) 2<sup>0</sup> & Yābis (Dry) 2<sup>0</sup>.
- Few years old: Hārr (Hot) 3<sup>0</sup> & Yābis (Dry) 2<sup>0</sup>.

**Muzir (Harmful Effects):** For individuals with a hot and bilious temperament: headache, vomiting, and thirst.

**Muṣliḥ (Correctives):** Vinegar, *Aab Anar Tursh* (*Punica Grantum* Juice), Lemon Juice (*Citrus aurantifolia*), Coriander (*Coriandrum sativum*), *Turanj* (*Citrus medica*).

**Badal (Substitutes):** *Doshab Angoori* (Juice of *Vitis vinifera*), Ripened Dates, Jaggery Syrup.



**Nafa' Khas (Main Actions):** *Mukhrij Balgham* (excretes *Balgham*) (useful in most of the cold diseases and phlegmatic temperament individuals)

**Miqdār-i-khurak (Dosage):** 2 to 5 tolas (20 -50g)

**Compound Formulations (Murakkabāt):** *Qiwām* for *Ma'jūn*, *Iṭrīfal*, *La'ūq*, *Labūb*, *Mufarriḥat*, and *Tiryāqāt* (all semi-solid formulations) are made by combining water and honey, and heating on low heat until the mixture reaches the desired consistency.<sup>3</sup>

**Af'āl (Pharmacological actions):** *Muḥallil-i-Waram* (Anti-inflammatory),<sup>3,5,6,12</sup> Immunomodulator,<sup>2,5</sup> Antioxidative,<sup>2,6,12</sup> *Dafi Taffun* (Antiseptic),<sup>12</sup> Antifungal,<sup>6</sup> Antibacterial,<sup>12</sup> *Musakkin-i-Auja'a* (Analgesic),<sup>3,12</sup> *Mughazzi* (Nutrient), *Jali* (Detergent), *Mufattiḥ i Sudad* (Deobstruent), *Mufattiḥ i Hisa't* (Lithotryptic),<sup>12</sup> *Munaffith i Balgham* (Expectorant),<sup>3,12</sup> *Musaffi i Dam* (blood purifier),<sup>12</sup> *Mundamil-i-Qurooh* (wound healer),<sup>1,12</sup> *Muqawwi i Mi'dā* (strengthens stomach)<sup>12</sup> (with *mastagi* (*Pistacia lentiscus*)),<sup>3</sup> *Haḍim* (Digestive), *Mushtahi* (Appetizer),<sup>12</sup> *Mulayyen* (laxative),<sup>3</sup> *Muqawwi-i-Bah* (Aphrodisiac),<sup>12</sup> *Mudirr-i-ḥayḍ* (emmenagogue), *Mudirr i bawl* (Diuretic) (if boiled with water), *Mudirr-i-laban* (galactagogue), *Muqawwi-i-basr* (strengthen eye sight), *Muqawwi-i-dimāgh* (strengthen brain). It has been proven that flavonoids in honey have a range of biological functions, including antibacterial, antiviral, anti-inflammatory, anti-allergic, and vasodilator properties. Additionally, flavonoids inhibit lipid peroxidation, platelet aggregation, capillary permeability and fragility, and enzyme system activity such as cyclooxygenase and lipoxygenase.<sup>3</sup>

### Therapeutic uses:

It is useful in *Istisqā'* (Ascites)<sup>3,12</sup>, *Laqwa* (Bell's palsy), *Fālij* (Hemiplegia), *Su'al i Balghami* (Productive cough),<sup>3,12</sup> *Sayalān al udhun* (Otorrhea), *Waja' al-Udhun* (Otagia),<sup>3</sup> Ophthalmological conditions like *Bāmnī* (blepharitis), keratitis, *Āshob e chashm* (Conjunctivitis), corneal injuries, chemical and thermal burns to eyes,<sup>5</sup> *Qurūḥ* (Wounds) like *Qurūḥ muzmina* (Unhealed ulcers)<sup>3,5</sup> abrasion, abscess, amputation, bed sores /decubitus ulcers, burns, cracked nipples, fistulas, diabetic, malignant, traumatic, cervical, varicose and sickle cell ulcers, septic wounds, surgical wounds or wounds of abdominal wall and perineum,<sup>5,16</sup> severe deep wounds,<sup>5</sup> *Dummal* (Boils),<sup>3</sup> Atopic Dermatitis,<sup>1</sup> *Nār Fārsī* (Eczema) (Najmul Ghani, a famous Unani physician, recommended a preparation of *Asl* (Honey) for local application),<sup>3</sup> *Dafe daad* (antifungal), Insect bites,<sup>5</sup> Arthritis, *Ḥudār* (Rheumatism), Rheumatoid Arthritis,<sup>1</sup> Gastrointestinal infections such as *Waram al-Mi'da* (gastritis), duodenitis, and gastric ulceration caused by bacteria and rotavirus,<sup>5,16</sup> *Ishāl* (Diarrhea)<sup>1,5,16</sup> Gastroenteritis, Colitis, Intestinal ulcer,<sup>5</sup> *Dīdān al-Am'ā'* (intestinal worms)<sup>3,16</sup>, *Qūbā* (Ring worm),<sup>3</sup> *Waram i- Lawzatayn* (tonsillitis),<sup>12</sup> *Waram i- Ḥalq* (pharyngitis),<sup>5,16</sup> *Yarqān* (Jaundice), *Iḏam al-Ṭiḥāl* (splenomegaly),<sup>12</sup> *Amrād e Ria* (Chest diseases), *Du'fal Bah* (sexual debility),<sup>3,12</sup> *Amrād i zanana* (Diseases of females),<sup>3</sup> *Qilla al-Bawl* (Oliguria), *'Usr al-Bawl* (Dysuria), *Ḥaṣā al-Kulya* (Renal calculi),<sup>3,12</sup> *Amrād i Qalb* (heart diseases),<sup>3,5,12</sup> *Juzam* (leprosy),<sup>3,12</sup> *Siman Mufriṭ* (obesity),<sup>3</sup> bruises of blunt injuries, *Kalaf* (freckles),<sup>5</sup> etc.

### **Honey in Gynaecological Conditions:**

There is limited information available regarding honey's impact on the reproductive system.<sup>6</sup>

- Honey ameliorates anomalies in uterine and ovarian morphology.<sup>15</sup>
- Menstruation: In a single-blind crossover design experiment, there was a substantial difference between the two groups in terms of the amount of bleeding, length, and interval of menstrual cycles following consumption of pure honey compared to impure

honey.<sup>17</sup> In women with primary dysmenorrhea, mefenamic acid capsules and honey both provided the same level of pain alleviation in a randomized crossover clinical trial.<sup>18</sup>

In another study, pure honey reduced the symptoms of dysmenorrhea.<sup>19</sup>

- Honey is effective against obesity (antioxidant components of honey)<sup>5,6</sup>
- It restores FSH and LH levels.
- Strengthens the reproductive tract (vagina and uterus), and enhances the quality of eggs. According to in vivo research, Tualang honey 200 mg/kg body weight taken orally for six weeks has the ability to reduce Bisphenol A-induced ovarian toxicity by lowering the morphological abnormalities of the ovarian follicles and enhancing the normal oestrous cycle.<sup>20</sup>
- In an in vivo study, taking 200 mg/kg body weight of Tualang honey orally for six weeks prevented ovarian toxicity caused by Cd by decreasing morphological abnormalities, restoring gonadotropin hormone levels, and maintaining equilibrium levels of antioxidant enzyme and lipid peroxidation in rat ovaries.<sup>21</sup>
- Breast Cancer: Tualang honey protected non-cancerous cells while increasing the cytotoxicity and DNA damage caused by 4-hydroxytamoxifen in breast cancer cells, according to research.<sup>22</sup>
- Male reproductive health:: Elevates the level of testosterone, sperm motility, viability, and count.<sup>3,12</sup> In in vivo research, 1.2 g/kg/day of Tualang honey remarkably raised the epididymal sperm count while not altering the number of spermatids or reproductive hormones.<sup>23</sup> In another in vivo study, Tualang honey decreased aberrant sperm production and the harmful effects of cigarette smoke on spermatogenesis. It also enhanced daily sperm production and the percentage of motile sperms.<sup>24</sup>
- Helps in Cryopreservation in Artificial Insemination: An increase in sperm quality after thawing was observed in a human study when 10% honey was added to the cryoprotectant solution.<sup>25</sup>
- Supplementing with Tulang honey daily from the first day of pregnancy appears to mitigate the negative effects of restraint stress on the weight of the reproductive organs and sperm parameters such as teratozoospermia and decreased sperm motility in male rat offspring, according to an in vivo investigation.<sup>15,26</sup>
- Honey induces gripping pain when taken early in the morning during pregnancy. This information is occasionally used to diagnose pregnancies.<sup>3,12</sup>

- The collagen-promoting action of honey prevents premature rupture of foetal membranes: (6) An in vitro study found that royal jelly and bee honey improved the mechanical characteristics of the developing fetal membranes.<sup>27</sup>
- It prevents and diminishes the severity of anemia since it contains iron, copper, and manganese (Mn), which are essential for the synthesis of hemoglobin.<sup>6</sup>
- Consumption of honey considerably diminishes labor pain. According to a study, 120 minutes after the consumption of honey, the pain had substantially reduced.<sup>28</sup>
- Honey promotes quick wound healing following an episiotomy and prevents sepsis. According to a study, the use of analgesics, the degree of pain, the continuity of the wound site, and the amount of inflammation in the episiotomy region were all significantly decreased by honey. Honey cream showed a more significant healing impact on episiotomy wounds than both phenytoin and placebo cream in a human study. Honey was also beneficial in treating wounds following cesarean sections.<sup>1</sup>
- Due to its tendency to absorb moisture from the atmosphere, honey helps wounds heal more quickly and prevents scars. This is due to the fact that honey enhances the growth of epithelial cells, which create the new skin layer that covers a healed lesion. In this regard, honey may be able to avoid the necessity for tissue transplantation, even in cases with extensive wounds.
- Honey promotes tissue regeneration, which is necessary for healing. It promotes the development of new blood vessels and fibroblasts that produce the collagen fibers that fortify the healing process and replace the connective tissue in the deeper layer of the skin.
- Because of its anti-inflammatory properties, honey helps to minimize swelling surrounding wounds. Enhancing circulation expedites the healing process. It reduces pain as well. When dressings are changed, there is no discomfort or tearing away of freshly produced tissue since honey does not adhere to the underlying wound tissues.
- Because of its antimicrobial properties, honey acts as a barrier to keep wounds from getting infected. It also rapidly eliminates any infection that may have developed in wounds. Even against bacterial strains resistant to antibiotics, it is completely effective. In contrast to antibiotics and antiseptics, the healing process is not hampered by negative effects on the tissues around the lesion.<sup>7</sup>
- Oestrogenic effect: Flavonoids and phenolic acids are responsible for this effect.<sup>6</sup> It improves menopause-related symptoms.<sup>2,5</sup> In both surgical and physiological menopause following ovariectomy, honey prevents the uterine and vaginal epithelia from atrophying due to a lack of estrogen.<sup>2</sup> It is an alternative remedy without the substantial adverse effects of Hormone Replacement Therapy (HRT).<sup>5</sup> In in vivo research, giving menopausal (ovariectomized) rats 2.0 g/kg Tulang honey in 0.5 ml of distill water orally for two weeks prevented uterine atrophy, enhanced bone density, and suppressed increasing body weight.<sup>29</sup>
- In Asia, honey is primarily utilized with egg yolk by indigenous people to boost vitality and enhance health throughout the postmenopausal and postpartum phases.<sup>15</sup>



- Honey increases the osmolarity of the immediate environment to which honey is being supplemented because of its hygroscopic and hyperosmolar qualities.<sup>6</sup>
- **Antimicrobial properties of honey:** Because of its physicochemical characteristics, honey inhibits the growth of germs and fungi. For example, (a) hypertonicity (due to its high sugar content); (b) high acidity and phytochemical content (flavonoids and alkaloids); (c) as a consequence of glucose oxidation (glucose oxidase in honey produces hydrogen peroxide, which possesses fungicidal properties).<sup>6</sup>
- Honey reduces the symptoms of vaginitis without having a negative impact.<sup>15</sup> It alleviates discharge, inflammation, itching, irritation, and dysuria. It prevents recurring infections, too.<sup>6</sup> In an in vitro study, a mixture of honey (from the United Arab Emirates), bee wax, and olive oil inhibited the growth of *Candida albicans* and *Streptococcus aureus*.<sup>30</sup>

#### ❖ **Antibacterial Properties:**

Antibacterial effects of honey were first discovered by van Ketel in 1892. A preventative and alternate remedy for urogenital infections is honey. It has been observed that honey inhibits about 60 different species of bacteria, including aerobes and anaerobes, gram-positives and gram-negatives. Numerous pathogens have been identified as susceptible to honey's anti-infective qualities. Eg: *Corynebacterium diphtheriae*, *Hemophilus influenzae*, *Klebsiella pneumoniae*, *Listeria monocytogenes*, *Mycobacterium tuberculosis*, *Pasteurella multocida*, *Bacillus anthracis*, *Yersinia enterocolitica*, *Proteus species*, *Pseudomonas aeruginosa*, *Acinetobacter spp.*, *Salmonella diarrhea*, *Salmonella typhi*, *Serratia marcescens*, *Shigella dysentery*, *Staphylococcus aureus*, *Streptococcus faecalis*, *Streptococcus mutans*, *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Vibrio cholerae*, etc.<sup>5</sup>

Uropathogenic *Escherichia coli* (*E. coli*) is the bacteria that causes urogenital infections. It colonizes the uroepithelia in the vagina and ascends to the uterine horns, where it causes recurrent urinary tract infections that are characterized by asymptomatic bacteriuria.

High oligosaccharide concentrations in honey promote a healthy gut flora, especially bifidobacteria.<sup>6</sup> (Bifidobacteria are gram-positive, anaerobic bacteria that are common in the gastrointestinal system, vagina, and oral cavity of mammals. They are probiotics that inhibit the growth of harmful pathogens. The biosurfactants produced balance the vaginal microflora by acidifying the vaginal mucosa, repel pathogenic bacteria (*Escherichia coli*), and prevent urogynecology infections).<sup>6</sup>

A study determined that honey's Minimum Inhibitory Concentration (MIC) varied between 1.8% and 10.8% (v/v). This indicates that honey possessed the antibacterial efficacy to halt bacterial growth even when diluted nine times and even up to 56 times for *Staphylococcus aureus*, the most prevalent wound pathogen.

Diluted honey was used to treat urinary tract infections because certain bacteria, such as *E. coli*, *Proteus species*, and *Streptococcus faecalis*, are susceptible to the antibacterial properties of honey.

It has been claimed that honey does not cause the growth of antibiotic-resistant bacteria, in contrast to the majority of conventional antibiotics, and that it can be used continually. Depending on the concentration, honey has the potential to have both bacteriostatic and bactericidal properties. Contrarily, artificial honey (a sugar solution that replicates the chemical makeup of honey) was bacteriostatic (at 20–30%) but bactericidal.<sup>5</sup>

❖ **Anti-fungal properties:**

Honey significantly inhibits the growth of *Candida albicans* both *in vivo* and *in vitro* without impacting *Lactobacillus*. Besides, in contrast to Clotrimazole, it does not change the vagina's natural flora.<sup>1</sup>

Vulvo Vaginal Candidiasis (VVC) infection is common and poses a serious risk to patients since it can result in inflammation of the mucosal membrane of the reproductive tract,

leading to irreversible damage to the reproductive organs and causing dyspareunia and climacteric symptoms (menstrual bleeding disorders, vaginal dryness, and metabolic syndrome). Hence, it has an impact on the female reproductive system's ability to reproduce.

In order to manage the patients' recurrent infection and other newly developing ailments, these symptoms demand an expensive course of treatment. If untreated, the loss of function could result in irreversible infertility.<sup>6</sup> Fungal growth is inhibited by pure honey, while the synthesis of toxins appears to be inhibited by diluted honey.<sup>5</sup>

Vaginal symptoms (vaginal discharge, itching, dyspareunia, burning, urinary incontinence) and culture findings (fewer *Candida albicans* colonies) were similarly significantly reduced in both honey gel (Sabalan Mountain, Iran Honey) (5 g of 50% honey gel) and the clotrimazole cream group in a single-blind clinical study.<sup>31</sup>

In a human study, honey symptoms of VVC infection were reduced with (Chaharmahal and Bakhtiari region, Iran honey) ointment (5 g of 70% honey cream) similar to clotrimazole ointment. However, the clotrimazole group demonstrated a greater improvement in vaginal discharge and inflammation than the honey group.<sup>32</sup>

❖ **Antiviral properties:**

Comparing topical honey application to acyclovir cream, it was proved that topical honey application was safe and effective in managing the signs and symptoms of recurrent lesions from labial and genital herpes. The study evaluated the impact of honey application on recurrent attacks of herpes lesions.<sup>5</sup>

Furthermore, honey has been proven to inhibit the activity of the Rubella virus.<sup>5</sup>

➤ **Honey as a (female) contraceptive:**

Honey, acacia leaves, and lint were combined and applied to the vagina in ancient Mesopotamia and Egypt to prevent fertilization by blocking sperm access into the reproductive tract.

The Kahun Gynaecological Papyrus described applying a mixture of honey and sodium carbonate to the entrance of the cervix.

In India, honey was utilized as a pessary of soluble material with contraceptive effects. By binding to oestrogen receptors, honey, a biphasic phytoestrogen, has been proven to have an oestrogenic impact at greater doses and an anti-oestrogenic impact at lower ones. In addition to its contraceptive properties, this feature of honey can be employed to strengthen the female reproductive system.<sup>6</sup>

### **Adverse Effects**

Ibn Zuhr also conjectured that bee venom may have contributed to some of the negative effects of honey, which might be alleviated by boiling and removing froth. He claims that the hot temperament of honey is different from sugar's since it contains bee venom. The latter has a simple, hot temperament that results from processing, whereas the former may be toxic.<sup>2</sup>

As of yet, there have been no documented negative effects of *Asl Khalis*. Though no such report has been published, it occasionally contains *Clostridium* spores, which carry a slight risk of wound botulism.<sup>5,12</sup> Therefore, honey should not be given to children younger than one year of age since it poses the risk of infant botulism. This type of food poisoning can be fatal, but it appears to only affect children under the age of one.

Caution should be exercised before consuming honey produced from a plant that is known to cause allergies.<sup>7</sup>

A type of food poisoning known as *Asl Khalis* intoxication is observed in the Black Sea region of Turkey as well as in several other regions of the world. Research found that several hours after ingesting tiny amounts of *Asl Khalis*, 66 patients were admitted to the hospital with a range of symptoms, including dizziness, weakness, salivation, nausea, vomiting, bradycardia, hypotension, and syncope. The majority of patients exhibited bradycardia, and all had hypotension. With intravenous fluids and atropine, these traits faded completely in a day, and none of the patients died.<sup>12</sup>

### **3. CONCLUSION**

The well-being of women is crucial to the well-being of families and communities. Honey is Almighty Allah's precious gift.<sup>15</sup> With regard to its valuable qualities and high nutritional content, honey is produced in numerous countries and is valued as a food source that provides energy and a significant medicinal source as well. Furthermore, the physiological, pharmacological, and biological effects of honey, which is a well-known natural product, have been widely recognized,<sup>16</sup> highly valued, and utilized since ancient times. Its high nutritional value (304 kcal/100 g of honey) and rapidly absorbable carbohydrate content make it a suitable nutritional supplement for human beings.<sup>15</sup>

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