

Apitherapy against gut disease

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Apitherapy Internet Course



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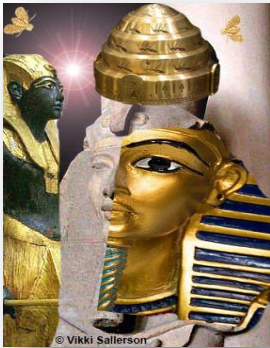
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## Chapter1: Introduction

*"All disease begins in the gut." — Hippocrates.*



"Hippocrates the Father of medicine born 460 BC was the first to release medicine from any kind of religious superstition and to establish it as a science based on observation and case recording."

(Hippocrates the physician, n.d.) So one could possibly presume the above quote came from observations he made from his

patients. We have proof of bee product use in humans that trace back thousands of years. I

believe Hippocrates used bee products to heal gut problems which then healed other diseases.

This might be one of the many reasons he became the great Father of medicine. "Obviously, not all disease begins in the gut. For example, this does not apply to genetic diseases. However, there is evidence that many chronic metabolic diseases do, in fact, begin in the gut. This has a lot to do with the different gut bacteria residing in our digestive tracts, as well as the integrity of the gut lining." (Kris Gunnars, 2015)

I am going to show how bee products heal gut disease in today's time as I believe it did in the past. With all the processing and preservatives found in our food source causing havoc to our digestive system and chronic problems for so many, this paper will give solutions to help prevent and heal gut disease.

## Chapter2: Abstract



Bee products from the hive have been used in traditional medicine for centuries to eliminate diseases in patients. Bee products have medicinal properties in them. Isn't it time for modern medicine to support the fact that bee products help eliminate diseases?

Apitherapy against gut disease has been working for centuries and continues to heal people today. With testimonials' coming in daily more modern medical doctors are turning to this natural healing from our hives. We will be taking a closer look at past and present apitherapy products and their uses to prevent and or cure gut disease.

### Chapter3: Feedback from people



During my Apitherapy internet course I shared with friends about the healing properties of bee products. The feedback I got about health problems pertaining to gastritis which is any of a group of conditions in which the stomach lining is inflamed, was overwhelming. Many mentioned having gastric ulcers which are sores that develops on the lining of the esophagus, stomach, or small intestine. Surprisingly many mentioned having Celiac disease an immune reaction to eating gluten, a protein found in wheat, barley, and rye affecting the small intestine, just to mention a few. One of the complaints came from my daughters mother in law she was suffering from stomach acid reflux and chronic discomfort and pain. After consulting with her about this condition, which plagued her for over ten years, I found out she was going to have a medical procedure done. It was scheduled to take place in just twelve days. I immediately gave her some bee products and asked her to start eating beebread, pollen and raw medicinal honey from my hive. Being desperate she tried it because her condition was effecting her entire life. She couldn't eat or do the things she wanted because of the pain, nausea and constant burning in her stomach and esophagus. I sent her home with enough product to take daily until her appointment with the medical doctor. After three days she came by to let me know how much better she was already feeling. I advised her to keep taking the bee product till it was finished twelve days worth and she did. After ten days she called to tell me she cancelled her medical appointment.

### 3.1 Feed back conclusion



The conclusion of this short story is one year later she is living life to the fullest. Of course after having this unexpected result I began to research other findings with similar gut problems that showed healing effects from bee products from the past and the present.

## Chapter4:Honey and pollen for treatment



Bee pollen is valuable for gut health, in part because of its high protein levels. "Bee pollen, in fact, contains more protein than any other animal source. Conditions like celiac disease can lead to malnutrition because of absorption problems. Adding additional nutrients to the diet with bee pollen can help make up the balance."

(Ysseldyk) "Honey having a long history of use has also added benefits to gut health. Although sugars in general are currently suffering bad press when it comes to illnesses involving inflammatory digestive issues, there is strong evidence emerging that honey does not cause the same aggravating symptoms as other forms of the sweet stuff. In fact, recent research provides robust indications that honey, unlike other forms of sugar, can actually go a long way toward restoring the integrity of the gut when damage has occurred." (Ysseldyk) "The evidence concerning the beneficial properties of honey could not be stronger simply because the research



concerned looked at the effects on one of the two main forms of Inflammatory Bowel Disease (IBD), ulcerative colitis (UC)." (M.Nour-Eldien, 2016)

#### 4.1 IBD and UC Illness



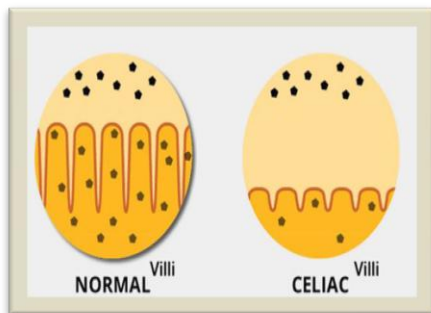
"This illness, which like many other digestive tract conditions is on the increase, is also chronic in nature. For patients this means that although the symptoms can go into remission intermittently, they can also expect it to be a life-long problem. Currently the contemporary treatments available for ulcerative colitis generally include those which are available for many other inflammatory intestinal problems such as irritable bowel syndrome. Usually these include both anti-inflammatory drugs and antibiotics which are often prescribed for long periods of time particularly when a sufferer has regular or severe relapses." (Ysseldyk) "An important study was released in July 2016 which found that by treating Ulcerative Colitis with honey, both enteric cells and nerves could be regenerated in the colon. The ability of honey to apparently replenish healthy tissue and nerve function also corresponded with a lower level of cell death, and both oxidative and inflammatory markers. The 2016 study is basically an extension of others performed over the last decade which provided strong indications that, at least when it came to reducing inflammation in UC, honey provided positive benefits. One of those studies was published back in 2008, and it combined a standard UC treatment, *sulfasalazine*, with Manuka honey which resulted in significant improvements in respect of reducing colonic inflammation." (B Medhi, 2007 revised 2008)

## Chapter5: Celiac Disease



Another disease important to mention is Celiac. This disease is growing rapidly in the United States so I find it important to discuss. "Celiac is an autoimmune disorder, a dangerous wheat intolerance to gluten. At the current time abstaining from gluten is the only proven treatment. People having this disorder cannot process gluten." (Ysseldyk)

### 5.1 Symptoms and complications of Celiac



" Symptoms of this disorder are a range of gastrointestinal symptoms such as bloating, vomiting, diarrhea, constipation and pale, foul-smelling stool. If left untreated over time, celiac disease can cause complications that include: Anemia and iron deficiencies, osteoporosis, infertility or miscarriage, vitamin and mineral deficiencies, gall bladder issues, lactose intolerance, nervous system disorders, pancreatic issues, and gastrointestinal cancers. Many of these complications are associated with the inflammatory response caused by celiac. When people with celiac are exposed to gluten-containing products, their immune systems attack the small intestine. When this happens, it results in damage to the villi, which are small, finger-like protrusions in the intestines that play a role in nutrient absorption". (Ysseldyk) "

### 5.1.1 Propolis effect on Celiac



"Propolis is well-known for its anti-inflammatory, anti-oxidant and immunomodulatory effects, due to its major compounds, polyphenols and flavonoids. In a study done on March 7 2018

Inflammopharmacology the results showed that PBMCs from Celiac patients produced high levels of NO and IFN- $\gamma$  compared with healthy controls (HC). Interestingly, EEP reduced significantly, NO and IFN- $\gamma$  levels significantly increased IL-10 levels at a concentration of 50  $\mu\text{g}/\text{mL}$ . Importantly, EEP downmodulated the iNOS expression as well as the activity of NF $\kappa$ B and pSTAT-3 transcription factors. With these results we can determine propolis may constitute a potential candidate to modulate inflammation during Celiac Disease and has a potential therapeutic value. To avoid Celiac Disease, the preservation and health of the small intestine is of utmost importance, and healing the gut is a fundamental step in restoring a Celiac patient's quality of life." (Medjeber O1, 2018)

## Chapter6: Propolis fights inflammation and promotes gut health



"While research on bee products and celiac disease is still developing, there is a growing body of knowledge regarding the power of bee products to fight inflammation and promote gut healing. In 2013, the National Institutes of Health reported on a study on the use of propolis in rats who had the colitis, an inflammatory condition of the gastrointestinal tract. Those with celiac disease or gluten sensitivity often have colitis or other inflammatory bowel conditions. Rats in the study were fed a solution that included propolis. After seven to 14 days of treatment, the rats' colons were examined. Those who were given the propolis extract showed a reduced inflammatory response. This included lower levels of the abscesses and cysts that are associated with ulcerative colitis." (Andrzej K. Kuropatnicki, 2013) Propolis has long been known as a healing and anti-inflammatory bee product.

## Chapter7: Bee pollen more than a brain food



"Bee pollen is an alkaline food considered by nutritionists to be the most complete food found in nature. Bee pollen is a rich source of high-quality protein. Bee pollen contains all essential amino acids. Its high levels of protein and amino acids make it a great strength builder and brain food. Some of the amino acids present include: cystine, lysine, histidine, arginine, aspartic acid, threonine, glutamine, proline, glycine, alanine, valine, methionine, isoleucine, leucine, tyrosine, phenylalanine, and tryptophan. Bee pollen contains vitamins A, B, C, and E. It is extraordinarily rich in most of the B vitamins, including folic acid.

Bee pollen contains over 5,000 enzymes. The phytonutrients (such as co-enzymes, bioflavonoids, phytosterols, and carotenoids) found in bee pollen also number in the thousands. Bee pollen is 15% natural lecithin. Some of the minerals included in bee pollen include: barium, boron, calcium, copper, iodine, iron, magnesium, manganese, phosphorus, potassium, selenium, sodium, and zinc. Zinc is needed to help heal and rebuild the stomach and esophagus lining.."  
(Real Raw Food)

## **Chapter8: Bee pollen recognized as medicine**

"Bee pollen contains almost all of the nutrients required by the human body to thrive? That's why the German Federal Board of Health has officially recognized it as a medicine. It's rich in vitamins, minerals, proteins, lipids and fatty acids, enzymes, carotenoids and bioflavonoids — making it an antibacterial, antifungal and antiviral agent that strengthens the capillaries, reduces inflammation, stimulates the immune system and lowers cholesterol levels naturally." (Christine Ruggeri, 2017)

### **8.1 Important miracle amino acid**

Bee pollen has two very important amino acids beta-alanine and L-histidine that combines and becomes Carnosine. Carnosine is in some countries known as the miracle amino acid. "Carnosine has many benefits to the body some are fantastic anti-aging capabilities, stabilizes blood sugar levels, lots of cognitive benefits especially for memory, protects the brain from toxins, has anti-cancer properties and is good for your gut." (Cohen, updated 2018)

## Chapter9: Pollen protects against drug Indomehacin



In a cell study, Zinc which we know is in bee pollen and Carnosine a dipeptide of the amino acids beta-alanine and histidine also found in pollen decreased damage to the hair-like structures, called villi, that line the gut. The villi increase the surface area of the intestine and contain specialized cells that transport substances into the bloodstream. Also when the stomach is exposed to bacteria, it was found to decrease the production of inflammatory cytokines, the sort of inflammation that would cause bloating and discomfort. Another finding in this study was that it protects against the drug (indomethacin) commonly used for arthritis that would otherwise cause leaky gut (A Mahmood, 200)

## Chapter10: Antibiotics wreak havoc on your gut



"According to a 2014 report published in BMC Medicine, broad-spectrum antibiotic prescription use has doubled from 2000 to 2010. The report goes on to say that nearly 50 percent of antibiotics prescribed for home use are unnecessary. Antibiotics are being commonly prescribed for conditions that aren't even associated with a bacterial infection – like the common cold and flu, which are caused by viruses. On top of that, the animals we eat, unless certified organic, are typically given courses of antibiotics as well, to prevent disease in their crowded and dirty living conditions and to stimulate their growth. So what's the harm in overexposing ourselves to antibiotics, aren't we "better safe than sorry"? The answer is no, taking unnecessary antibiotics can actually do more harm than good. While antibiotics have saved millions of lives over the

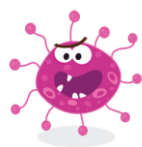
years, the excessive use and over-prescribing of these medications are wreaking havoc on your health because of their impact on your gut." (MD, 2017)

## 10.1 Good bacteria Bad bacteria

Tummy Buddy



Tummy Baddy



Vs

"I'll explain how antibiotics disrupt your gut microbiome,

how

that disruption affects your overall health, and how you can

restore your gut's balance if you do have to take antibiotics. Your gut is its own ecosystem,

providing a home to 100 trillion microorganisms, including 400 different species of bacteria.

These microbes in your gut play crucial roles in digestion, immunity, metabolism, and mental

health. Sixty to eighty percent of your immune system is located in your gut and ninety percent

of your neurotransmitters – the chemical messengers that help regulate mood – are produced in

your gut. In fact, the gut is often nicknamed the second brain because of how significantly it can

affect your mood and mental state. Maintaining the proper balance of bacteria and other

microorganisms in your gut is crucial, not just to your digestion, but to your overall health and

wellbeing. Antibiotics work by blocking vital processes in bacteria that either kill the bacteria or

stop them from multiplying. Unfortunately, antibiotics cannot differentiate between the “bad”

bacteria that may be causing a bacterial infection and the “good” bacteria that belong in your gut.

Instead, antibiotics come through like a tsunami, destroying everything in their path. When

antibiotics kill the bacteria that belong in your gut, it disrupts the delicate ecosystem, creating a

state of dysbiosis – or bacterial imbalance. When the number of good bacteria in your gut falls, it

leaves you susceptible to the overgrowth of other organisms, like yeast, frequently referred to as

Candida, because *Candida Albicans* is the most common strain of yeast. Yeast is opportunistic,

which means that when given the chance, it will grow and multiply, especially when given its favorite food source – sugar. When yeast starts to multiply, it can damage the lining of your intestinal walls, leading to what's known as leaky gut. Technically, everything that's in your small intestine is still considered to be outside of your body. It's not until substances pass through the intestinal lining that they become a part of your bloodstream. A healthy small intestine keeps toxins and undigested food material out, while a small intestine that has become "leaky" allows microbes, toxins, partially digested food, and other particles to pass through. When foreign substances make it into your bloodstream, your immune system flags them as invaders and begins to attack. Over time, this causes your immune system, liver, and lymphatic system to become overwhelmed and overworked. When the immune system can no longer keep up with this demand, your immune response goes haywire, and you can develop autoimmune disease." (Stephenson-Laws, 2018)

## 10.2 Raw Honey to protect your digestive system



"Let's talk about how important it is to protect your digestive system if you're taking antibiotics. One way to do this is to ensure you are eating enough foods with the "good bacteria," also known as probiotics, your gut needs to be healthy. The thing about probiotics, however, is that they are pretty picky with what they need to eat to stay healthy while they do their job of keeping us healthy. And what they need are prebiotics, which come in the form of fiber. Prebiotic foods are not digested by human enzymes, but reach the large intestines intact. They are a food source for good bacteria such as bifidobacteria and lactobacilli. However, while all prebiotics are fiber, not all fiber is



considered prebiotic. For a food item to be considered prebiotic, there are a few criteria it must meet. These include resistance to gastric acidity, an ability to be fermented by the probiotics in your gut, and stimulation of the growth and/or activity of the intestinal bacteria associated with health and well-being. This is where raw honey comes in. As it turns out, raw honey is an excellent prebiotic! It contains compounds called oligosaccharides which are not digestible in the small intestines. They reach the large intestine where the good bacteria utilize them to make nutrients that we can use. Another thing that makes raw honey special is that it is a non-dairy probiotic product. This is a huge advantage if you are lactose intolerant or allergic to dairy products. Since dairy products are the ones that typically have probiotic/prebiotic properties, raw honey is an excellent alternative source for prebiotics. Still, raw honey seems to primarily increase the growth of only certain strands of bacteria – bifidobacteria and lactobacilli, to be specific. So you may want to complement it with other fiber and plant food sources that are known to be good prebiotics, like bananas, onions, garlic, acacia gum, artichokes and whole grains. This is not surprising since, according to the National Institute for Health (NIH), “the healing property of honey is due to the fact that it offers antibacterial activity, maintains a moist wound condition, and its high viscosity helps to provide a protective barrier to prevent infection.” (Stephenson-Laws, 2018)

## Chapter11: History of Bees



It's important to talk about the history of bees to see that bee product usage was probable in history. "The history of bees and their products can be traced back to c. 13,000 BC. A certain amount of knowledge is attested by depictions of the bee and of hive beekeeping found during excavations. Rock paintings also

provide some of the earliest evidence of gathering honey from wild colonies. At some point humans began to domesticate wild bees in hives made from hollow logs, wooden containers, pottery vessels, and woven straw baskets. Although no written descriptions of bees and beekeeping are known from ancient Egypt, archaeological excavations attest that honeybees were kept there and that the main centre of beekeeping was lower Egypt with its extensive irrigated lands full of flowering plants. From c. 3100 BC the honeybee was used as a hieroglyph in the topographical symbol of Ancient Egypt. Since earliest times the gods were associated with the bee and one of the pharaohs' titles was "Bee King" Temples kept bees in order to satisfy the desire of the gods for honey and for the production of medicines and ointments. According to da Silva Veiga, the gods were associated with the bee as well as for conservation purposes. The evidence for such usage is; however, scant and anecdotal. For example, Ernest Budge in his book *The Mummy* presents an unsupported tale of Abd el-Latif about treasure hunters who found a sealed jar containing honey, and after eating part of it they discovered that it also contained the body of a small child." (Andrzej K. Kuropatnicki, 2013)

### 11.1 Apiculture existed in history

"A system of high-status apiculture existed in ancient Greece. The most ancient personality, related to apiculture, presented in historical documents, is Aristaios, son of god Apollo and nymph Cyrene. Regarded as the father of apiculture he is one of the most enigmatic figures of ancient Greek religion. The muses taught him among other skills the art of beekeeping and then Aristaios passed his knowledge on to the mortals. In Knossos archaeologists discovered hives, smoking pots, honey extractors, and other beekeeping paraphernalia. Also a number of written records survived. Aristotle's *Historia animalium* (*History of Animals*) is divided into ten books. The book IV discusses animals without blood and in the book V, Chapter XVIII, Aristotle makes

a number of remarkable observations about bees. Roman writer Virgil writes about “Heaven’s gift, the honey from the skies”, and many other Latin writers like Pliny the Elder, Rutilius Palladius, and Marcus Varro left the descriptions of bees and beekeeping in ancient Rome. Lucius Junius Moderatus Columella authored *De Re Rustica*, the book IX of which is devoted to “Wild animals—Bees, the management of them, their diseases and pests, honey and wax”. Gaius Julius Hyginus, who flourished in the 1st century AD, wrote on agriculture and beekeeping. However, of his numerous works nothing has survived. (Andrzej K. Kuropatnicki, 2013)

## 11.2 Bees mentioned in the Quran

"In the Quran there is a long chapter (*sorat*) with the name of bees which says about honey being healing for man:" (Andrzej K. Kuropatnicki, 2013) *And your Lord inspired to the bee, Take for yourself among the mountains, houses, and among the trees and [in] that which they construct. Then eat from all the fruits and follow the ways of your Lord laid down [for you]. There emerges from their bellies a drink, varying in colors, in which there is healing for people. Indeed in that is a sign for a people who give thought* ("The Bees", 2012) We can see that our medicinal little creatures have been performing their healing for a very long time. I believe that bee products have had an impact on gut problems throughout history.

## Chapter12: Propolis use in History



Aristotle used it!

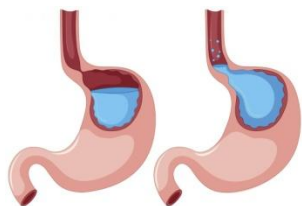


Egyptians used propolis to preserve mummies

Let's talk about one of my favorite valuable bee product propolis and its use in past history. "Propolis (bee glue) has been known for

centuries. The ancient Greeks, Romans, and Egyptians were aware of the healing properties of propolis and made extensive use of it as a medicine. In the middle ages propolis was not a very popular topic and its use in mainstream medicine disappeared. However, the Propolis (bee glue) has been known for centuries. The interest in propolis returned in Europe together with the renaissance theory of *ad fontes* which means "[back] to the sources". It has only been in the last century that scientists have been able to prove that propolis is as active and important as our forefathers thought. Research on chemical composition of propolis started at the beginning of the twentieth century and was continued after WW II. Advances in chromatographic analytical methods enabled separation and extraction of several components from propolis. At least 180 different compounds have been identified so far. Its antibacterial, antiseptic, anti-inflammatory, antifungal, anesthetic, and healing properties have been confirmed. Propolis has been effectively used in treatment of dermatological, laryngological, and gynecological problems, neurodegenerative diseases, in wound healing, and in treatment of burns and ulcers." (Andrzej K. Kuropatnicki, 2013)

### Chapter13: Present day Disease (GERD)



Getting back to today's time I'd like to talk about Gastroesophageal reflux disease (GERD). "Gastroesophageal reflux disease (GERD)

occurs when stomach acid frequently flows back into the tube connecting your mouth and stomach (esophagus). This backwash (acid reflux) can irritate the lining of your esophagus. Many people experience acid reflux from time to time. GERD is mild acid reflux that occurs at least twice a week, or moderate to severe acid reflux that occurs at least once a week." (MFMER, 1998-2018) However over time, chronic inflammation in your esophagus along with stomach

acid can cause a narrowing from scar tissue which then leads to swallowing difficulty and open sores which increase risk of cancer. Why not prevent these complications before they start with using our blessed bee products as they did in the past? "Honey is an incredibly powerful functional food. It never ceases to amaze me just how many ailments it can be used to heal. It seems that scientists are also overly intrigued by its unusual therapeutic properties. Studies looking into the causes of acid reflux have only been carried out in relatively recent years, due to the rapid climb in reported cases. Currently, more than 60 million adults experience acid reflux each month in America alone. A group of wise scientists recognized a strong relationship between oxygen-derived free radicals and people who suffer from acid reflux. Think of free-radicals as the bad guys out of a horror movie, looking to attack your healthy cells. Inhibiting the free radicals is needed to reduce symptoms of acid reflux. When looking at how to help the body combat these attackers, antioxidant levels need to be high enough to overcome this oxidative stress. Honey is a powerful free radical scavenger with strong anti-inflammatory properties. As the esophagus is not designed to have stomach acid finding its way into its delicate lining, you can imagine the acid as a toxic, burning substance, which somewhat explains the discomfort you're experiencing. Given the thick texture of honey, it acts to coat and protect the mucus membranes in your throat and provides much-needed relief from acid reflux. For this reason, honey is also highly effective in treating various painful throat conditions. In a 2013 study, honey has been found to restore glutathione levels. Glutathione is an antioxidant that prevents damage to cells. Digestive diseases, such as GERD, are known to lower glutathione levels in the body." Additionally, honey also helps in: Activating enzymes so they can carry out the usual protective functions of your cells, breaking down toxins and free-radicals and excrete them from

the body. Honey helps in recycling other antioxidants so your body can absorb vitamins and minerals more efficiently from the food you eat." (Davidson, 2017)

### 13.1 Honey as a prebiotic



Honey as we learned earlier is being recognized as a potential prebiotic, since it has oligosaccharides (An oligosaccharide is a saccharide polymer containing a small number of monosaccharides. Oligosaccharides can have many functions including cell recognition and cell binding. For example, glycolipids have an important role in the immune response, that can promote the growth of lactobacilli (Any of various rod-shaped, oxygen-tolerant anaerobic bacteria of the *genus Lactobacillus* that ferment sugars to lactic acid) and *bifidobacteria* (A group of bacteria normally present in the intestine.), in addition to antimicrobial components which can act synergistically with the probiotics against certain pathogens. (Anand Mohan, 2017) "Prebiotics are dietary ingredients that provide a fermentable carbohydrate substrate to selective probiotic genera, thus benefiting the host health by modulating the gut microbial balance. Prebiotics play an important role in favorably modifying the colonic microflora which may have lost the predominance of *lactobacilli* and *bifidobacteria* due to various factors such as food habits, drugs, chronic stress, and normal ageing. A good indicator of the effectiveness of prebiotics is their ability to restrain the growth and activity of the pathogens and other undesirable microflora. Prebiotics also confer additional health benefits by improving the stool quality, stimulating the immune system, alleviating lactose intolerance, and reducing the risk of allergies and intestinal infections. Honey, which possibly is the earliest sweetener known to mankind, was also being used for wound healing before the advent of

modern antibiotics, and as a traditional medicine in many ancient cultures.” (Anand Mohan, 2017)

## Chapter14: Gastrointestinal therapies using propolis



As I stated earlier one of my favorite bee products is propolis. I enjoy chewing it and savoring the stringent flavor. "Propolis has been used in the folk medicine since 300 BC" (Ghisalberti, 2015) Today propolis can be used to treat

Gastrointestinal disorders. There are a number of disorders that affect the gastrointestinal tract. Such disorders have become a global emerging disease with a high incidence and prevalence rates worldwide. Inflammatory and ulcerative processes of the stomach or intestines, such as gastritis, ulcers, colitis, and mucositis, afflict a significant proportion of people throughout the world. The role of herbal-derived medicines has been extensively explored in order to develop new effective and safe strategies to improve the available gastrointestinal therapies that are currently used in the clinical practice. Studies on the efficacy of propolis (a unique resinous aromatic substance produced by honeybees from different types of species of plants) are promising and propolis has been effective in the treatment of several pathological conditions." (Luisa Mota da Silva, 2018) propolis has been widely used to treat several illnesses including those that affect the gastrointestinal tract, such as mucositis, colitis, gastritis, and peptic ulcer (José MaurícioSforcina, 2011)

### 14.1 Propolis use in Folk medicine for Gastric ulcer promotes research

"Gastric ulcer is defined as an injury to the gastric mucosa, which occurs due to an imbalance between the luminal challenge exerted by the highly acidic and proteolytic properties of gastric juices and the ability of the mucosa to resist them. This disease affects 10% of the world population, but its etiology is not completely understood. There are various noxious agents to the stomach resulting in mucosal ulceration, such as *Helicobacter pylori* infections, prolonged ingestion of nonsteroidal anti-inflammatory drugs (NAIDs), alcoholic drinks, psychological stress, and cigarette smoking. On the other hand, the stomach protects itself through many defense mechanisms, mainly adequate blood flow and bicarbonate and mucus secretions. The treatment of gastric ulcers is based on using antisecretory drugs, including type-2 histamine receptor antagonists (H<sub>2</sub>-RAs) and proton pump inhibitors (PPIs), as well as antibiotics used to treat the *H. pylori* infections. However, these therapeutic agents are typically associated with numerous adverse side effects, such as hypersensitivity, vitamin B12 and iron deficiency, arrhythmia, increased susceptibility to pneumonia, impotence, gynecomastia, bone fractures, hematopoietic changes, hypergastrinemia, and gastric cancer. In this context, natural products are considered as attractive sources for new antiulcer treatments. Among them propolis, propolis has been used in folk medicine to treat gastric ulcer and this has boosted research in order to investigate and validate its use as an antiulcer." (Luisa Mota da Silva, 2018)

### 14.2 Oh the things propolis can do

So far we have learned that propolis has a healing effect on the digestive system and stimulates its regular functioning and protects stomach cells from damage. But did you know that propolis can be effective in constipation prevention. Propolis due to its anaesthetic and healing properties has been used in treatment of gastric and duodenal ulcer for a long time. The practice of using



propolis has shown rapid healing effect on duodenal ulcers. This is probably due to its anti-inflammatory properties. Using propolis has shown a very beneficial effect on chronic large intestine inflammation (colitis). It prevents lesion of the large intestine that can cause the development of carcinoma. When the carcinoma has already developed it slows down its growth, kills the tumour cells and reduces the risk of metastasizing to the liver. Combined with cytostatics, it diminishes the progress of abdomen carcinoma considerably and the recuperation of white and red blood cells is more rapid, compared to using only cytostatics." (Digestive system)

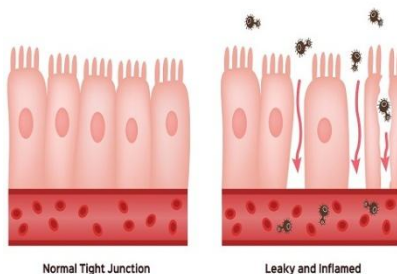
### 14.3 A little more history on propolis

Back to some more history on my favorite bee product propolis, we know that," the ancient Egyptians, Persians, Greeks and Romans all used propolis and it has been used in primary medicine up through WW II where it aptly became known as "Russian penicillin". Ancient Egyptians considered Propolis to be the "secret to eternal health and life". Several famous healing historical authorities utilized Propolis as part of their medicine chest. Hippocrates, the famous Greek physician, wrote that it was useful to treat sores, ulcers, and bruises. The famous Roman physician, Pliny, used it to disperse tumors and thought so highly of it as a first aid remedy that he wrote Propolis "heals sores when it appears hopeless for them to mend". It is no surprise then that Roman Legionnaires were known to carry some Propolis in their first aid pouches to apply to wounds and injuries. The great Persian physician, Avicenna, also thought highly of Propolis' healing potential; in an ancient manuscript he suggested its use for eczema, myalgia, and rheumatism. The Renaissance era author of one of the most influential herbals, Gerard, wrote that Propolis was useful for all types of inflammation. **(Mark J. Kaylor)**

### 14.4 Propolis confirmed by modern medicine

One of the most intriguing things about these historical uses is that, amazingly, most, if not all of these traditional applications have now been confirmed by modern research. With the onset of modern medicine and the widespread use of antibiotics Propolis fell out of favor. Thankfully, researchers over the last several decades have rediscovered the healing potential of this amazing gift from the beehive. And not a moment too soon considering the growing concerns over an increasing number of microbes becoming resistant to conventional treatment. This is an area Propolis can excel at since research shows its synergistic use with antibiotics significantly decreases the likelihood of bacterial resistance developing. On top of this, thanks to a wide array of active anti-microbial compounds, bacteria are not able to develop resistance to Propolis' bug killing actions. So you could say, Propolis' time has finally come, and now with the research to prove it." (Mark J. Kaylor)

## Chapter15: How to fix Leaky Gut



One of the most common questions I've been receiving is how do I fix my leaky gut. What is leaky gut? "Leaky gut is one of the most dangerous conditions believed to be a medical mystery. It is a common syndrome among many people, but it

is unfortunate to note that over 80 percent of those having it do not know they are suffering from the said disease. The syndrome is said to have signs and symptoms including gas cramps, bloating, aches, pains, and food sensitivities. Other disorders linked to Leaky gut include skin

conditions (such as eczema/psoriasis and acne), irritable bowel disease, autoimmune diseases, mood disorders, colitis, and thyroid issues." (How to Eliminate Leaky Gut with Bee Propolis)

### **15.1 What causes Leaky Gut**

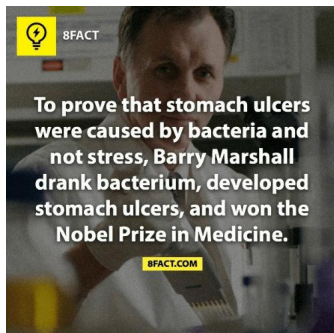
"It is apparent that the above syndrome is linked directly to the health of a gut, but what precisely causes it and how can it be treated? As mentioned earlier, the Leaky gut is a mysterious condition, and that is why numerous researches are being conducted to ascertain the primary cause. As we wait for more results, what we do know is that the condition happens because of increased intestinal hyper permeability or intestinal permeability. This occurs when tight junction in the gut responsible for controlling what goes through the lining of the small intestine work improperly. As a result, it allows foreign substances to leak into the bloodstream, resulting in a series of health issues. Over the years, the above syndrome has claimed lives of hundreds of thousands of people across the world. Medication has been advanced to treat it, but it is extremely expensive, and most people cannot afford it. Nonetheless, herbal medical experts have found another ingenious treatment. It is none other than the use of bee propolis! (How to Eliminate Leaky Gut with Bee Propolis)

### **15.2 Propolis treats Leaky Gut**

Russian Penicillin, propolis was (and perhaps still is) ever present in every first Aid Kit in many European countries especially those located in the far east where they didn't have access to pharmaceutical drugs. Nowadays, bee propolis is used to treat a variety of mysterious complications, and this article dives deep on how it can help treat the above condition. Several studies have been done to ascertain the effectiveness of bee propolis in treating the above syndrome, and positive results have been found. According to one of the studies published in one

of the health journals, it has been established that Propolis can strengthen junctions and joints around the gut, which leads to less leaky gut. That is not tough enough; research continued with the analysis of the effects of polyphenol (one of the main elements of bee propolis) on intestinal barrier function in the intestinal cells. It was confirmed that propolis accelerates the rate at which cells in a tight junction (where there is a gut join) is higher than when treated with other medications. In a nutshell, bee propolis has several vital elements that help affected areas form a virtually impermeable barrier that prevents external fluids from passing through. The important compounds present in propolis are Kaempferol and Quercetin (both of which are polyphenols) help stimulate intestinal cell barrier integrity. It is profound that these two substances played a key role in the ability of bee propolis to improve and promote gut health." (How to Eliminate Leaky Gut with Bee Propolis)

### 15.3 Ulcers caused by bacteria not stress



"Doctors used to believe that a stressful lifestyle, accompanied with a poor diet, led to stomach ulcers. Recent modern research shows that ulcers are actually caused by a bacteria called *Helicobacter pylori* (*H. Pylori*). This culprit attaches itself to the stomach lining and feasts upon the stomach's cells. This results in increased acid production, which creates an imbalance within the stomach. Stomach ulcers are painful. Some of the symptoms include: A nagging pain in the middle or upper stomach in between meals or at night Heartburn, Bloating, Nausea and/or vomiting. In severe cases, symptoms consist of: Blackened stool (a result of

internal bleeding) Vomiting blood, Weight loss, Intense abdominal pain. Stomach Ulcer  
Treatment Since bacteria are the primary suspect of stomach ulcers, can be treated with antibiotics. Nonetheless, antibiotic treatment doesn't always work. This is probably due to the fact that many strains of bacteria are now developing resistance to many of the manufactured antibiotics. Even so, there are natural remedies one can use to ease symptoms or cure the ailment entirely. One such remedy is to treat stomach ulcers with honey. Because of the composition of honey, bacteria cannot survive within its environment. Honey is also known to kill the *H. Pylori* bacteria, which is the primary cause of peptic ulcers. Recent research shows that honey can be used to treat stomach ulcers. To verify their hypothesis, researchers tested honey on bacteria from the biopsies of gastric ulcers. As a result, the honey inhibited bacterial growth.” (Treat Stomach Ulcers with Honey)

## **Chapter16: Conclusion**

In conclusion you can see just how wonderful our bee products are for Health in the Gut. So indeed apitherapy against gut disease is becoming a well know and scientifically proven way to promote gut health in today's time.

## **Chapter17: Glossary**

Anemia: is a condition that develops when your blood lacks enough healthy red blood cells or hemoglobin.

Antioxidant: Antioxidants are compounds that inhibit oxidation. Oxidation is a chemical reaction that can produce free radicals, thereby leading to chain reactions that may damage the cells of organisms.

Arrhythmia: is a problem with the rate or rhythm of your heartbeat

Autoimmune disorder: is a condition in which your immune system mistakenly attacks your body

barium, boron, calcium, copper, iodine, iron, magnesium, manganese, phosphorus, potassium, selenium, sodium, and zinc

*Bifidobacteria* are a group of bacteria that normally live in the intestines. They can be grown outside the body and then taken by mouth as medicine.

Bioflavonoids any of a group of compounds occurring mainly in citrus fruits and black currants, formerly regarded as vitamins.

*Candida Albicans* is a species of yeast — a single-celled fungus — that's a normal part of the microbes that live in your gastrointestinal tract. Small amounts of the yeast also live in various warm, moist areas throughout the body, including the mouth, rectum, vagina, and parts of your skin

Carcinoma: A disease in which abnormal cells divide uncontrollably and destroy body tissue.

Carotenoids any of a class of mainly yellow, orange, or red fat-soluble pigments, including carotene, which give color to plant parts such as ripe tomatoes and autumn leaves. They are terpenoids based on a structure having the formula  $C_{40}H_{56}$ .

Celiac disease An immune reaction to eating gluten, a protein found in wheat, barley, and rye.

Chronic metabolic diseases: Inherited metabolic disorders are genetic conditions that result in metabolism problems. Most people with inherited metabolic disorders have a defective gene that results in an enzyme deficiency. There are hundreds of different genetic metabolic disorders, and their symptoms, treatments, and prognoses vary widely.

Colonic inflammation Inflammation of the colon

Cytostatics: any substance that inhibits cell growth and division

Dermatological: definition, the branch of medicine dealing with the skin and its diseases

Dipeptide is an organic compound derived from two amino acids. The amino acids can be the same or different. When different, two isomers of the *dipeptide* are possible, depending on the sequence.

Downmodulated: To modulate to a lower level.

Duodenal ulcers: A sore that develops on the lining of the esophagus, stomach, or small intestine.

Ecosystem a biological community of interacting organisms and their physical environment.

EPP: Erythropoietic protoporphyria (EPP) is a form of porphyria, which varies in severity and can be very painful. It arises from a deficiency in the enzyme ferrochelatase, leading to abnormally high levels of protoporphyrin in the red blood cells (erythrocytes), plasma, skin, and liver

Enteric cells: relating to or occurring in the intestines. "the complexity of the enteric nervous system"

Esophagus the part of the alimentary canal that connects the throat to the stomach; the gullet. In humans and other vertebrates it is a muscular tube lined with mucous membrane.

Flavonoids: Flavonoids are important antioxidants, and promote several health effects. Aside from antioxidant activity, these molecules provide the following beneficial effects: Anti-viral. Anti-cancer.

Gastric cancer: is a disease in which malignant (cancer) cells form in the lining of the stomach.

Gastric ulcers: Stomach ulcers, which are also known as gastric ulcers, are painful sores in the stomach lining.

Gastrointestinal relating to the stomach and the intestines.

Glycolipids: are lipids with a carbohydrate attached by a glycosidic (covalent) bond. Their role is to maintain the stability of the cell membrane and to facilitate cellular recognition, which is crucial to the immune response and in the connections that allow cells to connect to one another to form tissues.

Gynecological: adjective: relating to the branch of physiology and medicine which deals with the functions and diseases specific to women and girls, especially those affecting the reproductive system.

Gynecomastia: Swollen male breast tissue caused by a hormone imbalance.

Haematopoiesis. This process occurs in the red bone marrow, in the core of most bones.HC: hemorrhagic colitis

*Helicobacter pylori*: is a type of bacteria. These germs can enter your body and live in your digestive tract. After many years, they can cause sores, called ulcers, in the lining of your stomach or the upper part of your small intestine. For some people, an infection can lead to stomach cancer.

Hematopoietic: are the stem cells that give rise to other blood cells. This process is called

Hypergastrinemia : the presence of an excess of gastrin in the blood. gastrinemia: The presence of gastrin in the blood

Hyper permeability: Higher than normal permeability of the gut or a blood vessel.

IFN- $\gamma$ : is a major immune-modulating molecule produced mainly by T-cells and natural killer cells activated by antigens, mitogens or alloantigens.

IL-10 levels: Interleukin 10 (IL-10), also known as human cytokine synthesis inhibitory factor (CSIF), is an anti-inflammatory cytokine. In humans, interleukin 10 is encoded by the IL10 gene. IL-10 signals through a receptor complex consisting of two IL-10 receptor-1 and two IL-10 receptor-2 proteins.

Immunomodulator: a chemical agent (as methotrexate or azathioprine) that modifies the immune response or the functioning of the immune system

Inflammatory Bowel Disease (IBD) (IBD) represents a group of intestinal disorders that cause prolonged inflammation of the digestive tract.

iNOS A gene on chromosome 17q11.2-q12 that encodes inducible nitric oxide synthase (*iNOS*), a small molecule that has various roles in cellular functions and acts via a cGMP-mediated signal transduction pathway.

Kaempferol: is a natural flavonol, a type of flavonoid, found in a variety of plants and plant-derived foods

*Lactobacilli* a rod-shaped bacterium which produces lactic acid from the fermentation of carbohydrates. These are "friendly" bacteria that normally live in our digestive, urinary, and genital systems without causing disease.

Laryngology: is a branch of medicine that deals with disorders, diseases and injuries of the vocal apparatus, especially the larynx.

Lipids A class of lipids that serve as major structural component of cell membranes is phospholipids. Although phospholipids are similar to triglycerides in containing glycerol and fatty acids, there are some significant differences.

Lumina: is the inside space of a tubular structure, such as an artery or intestine.

Manuka honey is made in Australia and New Zealand by bees that pollinate the native *manuka* bush.

Metastasizing: (of a cancer) spread to other sites in the body by metastasis.



**Microflora:** bacteria and microscopic algae and fungi, especially those living in a particular site or habitat.

**Monosaccharides:** also called simple sugars, are the simplest form of sugar and the most basic units of carbohydrates. They cannot be further hydrolyzed to simpler chemical compounds.

**Mucositis:** is the painful inflammation and ulceration of the mucous membranes lining the digestive tract, usually as an adverse effect of chemotherapy and radiotherapy treatment for cancer.

**Neurotransmitters** a chemical substance that is released at the end of a nerve fiber by the arrival of a nerve impulse and, by diffusing across the synapse or junction, causes the transfer of the impulse to another nerve fiber, a muscle fiber, or some other structure.

**NFκB** (nuclear factor kappa-light-chain-enhancer of activated B cells) is a protein complex that controls transcription of DNA, cytokine production and cell survival.

**NO :** also called nitrogen monoxide, colourless toxic gas that is formed by the oxidation of nitrogen. Nitric oxide performs important chemical signaling functions in humans and other animals and has various applications in medicine.

**Oligosaccharides:** a carbohydrate whose molecules are composed of a relatively small number of monosaccharide units.

**Osteoporosis:** a medical condition in which the bones become brittle and fragile from loss of tissue, typically as a result of hormonal changes, or deficiency of calcium or vitamin D.

**Oxidative:** relating to the process or result of oxidizing or being oxidized.

**Oxidized:** combine or become combined chemically with oxygen.

**Oxygen-derived free radicals:** An atom or atom group having an unpaired electron on an oxygen atom, typically derived from molecular oxygen.

**Pathogens:** a bacterium, virus, or other microorganism that can cause disease

**Pathological:** involving, caused by, or of the nature of a physical or mental disease.

**Pancreatic:** relating to the pancreas a large gland behind the stomach which secretes digestive enzymes into the duodenum.

**PBMCs:** A peripheral blood mononuclear cell (PBMC) is defined as any blood cell with a round nucleus (i.e. a lymphocyte, a monocyte, or a macrophage). These blood cells are a critical component in the immune system to fight infection and adapt to intruders.

**Peptic ulcer:** A peptic ulcer is a round or oval sore where the lining of the stomach or duodenum has been eaten away by stomach acid and digestive juices.  
**Polyphenols:** a compound containing more than one phenolic hydroxyl group.

**Phytonutrients** a substance found in certain plants which is believed to be beneficial to human health and help prevent various diseases.

**Phytosterols** or plant sterols, are a family of molecules related to cholesterol. They are found in the cell membranes of plants, where they play important roles, just like cholesterol in humans. ... Humans actually have two enzymes called sterolins, designed to regulate which sterols can enter the body from the gut.

**Polyphenols:** are micronutrients that we get through certain plant-based foods. They're packed with antioxidants and potential health benefits. It's thought that polyphenols can improve or help treat digestion issues, weight management difficulties, diabetes, neurodegenerative disease, and cardiovascular diseases

**Proteolytic:** is the breakdown of proteins into smaller polypeptides or amino acids

**pSTAT-3** The STAT3 gene is part of a family known as the STAT genes. ... By binding to regulatory regions near genes, STAT proteins can regulate whether these genes are turned on or off. STAT proteins are called transcription factors on the basis of this action. The STAT3 protein is involved in many cellular functions.

**Quercetin :** is a plant pigment (flavonoid). It is found in many plants and foods, such as red wine, onions, green tea, apples, berries, Ginkgo biloba, St. John's wort, American elder, and others. Buckwheat tea has a large amount of quercetin. People use quercetin as a medicine.

**Sulfasalazine** Anti-inflammatory It can treat ulcerative colitis and rheumatoid arthritis.

**Ulcerative colitis** is a chronic disease of the large intestine, also known as the colon, in which the lining of the colon becomes inflamed and develops tiny open sores, or ulcers, that produce pus and mucus.

**µg/mL:** In the metric system, a microgram or microgramme (µg; the recommended symbol in the United States when communicating medical information is mcg) is a unit of mass equal to one millionth ( $1 \times 10^{-6}$ ) of a gram. The unit symbol is µg according to the International System of

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## Picture references

Any pictures not referenced are by Vikki Elliott Sallerson

## Chapter 5 picture

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## 5.1 picture

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## Chapter 6 picture

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## Chapter 8 picture

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## Chapter 9 picture

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## 9.1 picture

[https://www.google.com/search?hl=en&biw=854&bih=634&tbn=isch&sa=1&ei=rDhrXMmyDKi3jwTj3ovAAQ&q=Good+bacteria+Bad+bacteria&oq=Good+bacteria+Bad+bacteria&gs\\_l=img.3..0j0i8i30i5.465741.465741..467408...0.0..0.63.63.1.....1....2j1..gws-wiz-img.CdcPbOm3PGs#imgrc=scl84UZm2qLQ5M:](https://www.google.com/search?hl=en&biw=854&bih=634&tbn=isch&sa=1&ei=rDhrXMmyDKi3jwTj3ovAAQ&q=Good+bacteria+Bad+bacteria&oq=Good+bacteria+Bad+bacteria&gs_l=img.3..0j0i8i30i5.465741.465741..467408...0.0..0.63.63.1.....1....2j1..gws-wiz-img.CdcPbOm3PGs#imgrc=scl84UZm2qLQ5M:)

## 9.2 picture

[https://www.google.com/search?hl=en&biw=854&bih=634&tbn=isch&sa=1&ei=gDprXMy6EoqmjwS6pLnYDQ&q=Raw+Honey+to+protect+your+digestive+system&oq=Raw+Honey+to+protect+your+digestive+system&gs\\_l=img.3...167691.167691..168673...0.0..0.59.59.1.....1....2j1..gws-wiz-img.ndc\\_8SaUf4Q#imgdii=6SEjG-sdRLtknM:&imgrc=zDKgP\\_SjHluH9M:](https://www.google.com/search?hl=en&biw=854&bih=634&tbn=isch&sa=1&ei=gDprXMy6EoqmjwS6pLnYDQ&q=Raw+Honey+to+protect+your+digestive+system&oq=Raw+Honey+to+protect+your+digestive+system&gs_l=img.3...167691.167691..168673...0.0..0.59.59.1.....1....2j1..gws-wiz-img.ndc_8SaUf4Q#imgdii=6SEjG-sdRLtknM:&imgrc=zDKgP_SjHluH9M:)

## Chapter 11 picture

[https://www.google.com/search?hl=en&biw=1042&bih=634&tbn=isch&sa=1&ei=TIpsXNXPJqiZjwT6xba4BA&q=Propolis+use+in+History+art&oq=Propolis+use+in+History+art&gs\\_l=img.3...192911.193862..194461...0.0..0.77.279.4.....1....1..gws-wiz-img.igHwEQzVudc#imgrc=JCfsY2Lij1jOM:](https://www.google.com/search?hl=en&biw=1042&bih=634&tbn=isch&sa=1&ei=TIpsXNXPJqiZjwT6xba4BA&q=Propolis+use+in+History+art&oq=Propolis+use+in+History+art&gs_l=img.3...192911.193862..194461...0.0..0.77.279.4.....1....1..gws-wiz-img.igHwEQzVudc#imgrc=JCfsY2Lij1jOM:)

## Chapter 12 picture

[https://www.google.com/search?hl=en&biw=1002&bih=634&tbn=isch&sa=1&ei=indsXI3qIMKcjwSR-oOwAQ&q=GERD&oq=GERD&gs\\_l=img.3...3947075.3948293..3948913...0.0..0.0.0.....1....1..gws-wiz-img.RwKisfjT1k4#imgrc=OEQDZDdfbLBhzM:](https://www.google.com/search?hl=en&biw=1002&bih=634&tbn=isch&sa=1&ei=indsXI3qIMKcjwSR-oOwAQ&q=GERD&oq=GERD&gs_l=img.3...3947075.3948293..3948913...0.0..0.0.0.....1....1..gws-wiz-img.RwKisfjT1k4#imgrc=OEQDZDdfbLBhzM:)

## Chapter 14 picture

[https://www.google.com/search?hl=en&biw=1002&bih=634&tbm=isch&sa=1&ei=sldsXJX3E8jSjwThzLbYCA&q=Leaky+Gut&oq=Leaky+Gut&gs\\_l=img.3..0l10.282293.282293..282830...0.0.0.89.89.1.....1.....2j1..gws-wiz-img.MZoNrilosNg#imgrc=HseK-qD0L0YajM:](https://www.google.com/search?hl=en&biw=1002&bih=634&tbm=isch&sa=1&ei=sldsXJX3E8jSjwThzLbYCA&q=Leaky+Gut&oq=Leaky+Gut&gs_l=img.3..0l10.282293.282293..282830...0.0.0.89.89.1.....1.....2j1..gws-wiz-img.MZoNrilosNg#imgrc=HseK-qD0L0YajM:)

14.3 picture

[https://www.google.com/search?hl=en&biw=1002&bih=634&tbm=isch&sa=1&ei=w19sXJuHNYu9jwTutJ-ADg&q=ulcers+caused+by+bacteria+not+stress&oq=ulcers+caused+by+bacteria+not+stress&gs\\_l=img.12..0i24.6053830.6083250..6086182...1.0..0.232.2808.36j1j1.....2.....1..gws-wiz-img.....0..0j35i39j0i67j0i5i30j0i8i30.6Fr3kMrKl30#imgrc=uyqugVdYBpJFYM:](https://www.google.com/search?hl=en&biw=1002&bih=634&tbm=isch&sa=1&ei=w19sXJuHNYu9jwTutJ-ADg&q=ulcers+caused+by+bacteria+not+stress&oq=ulcers+caused+by+bacteria+not+stress&gs_l=img.12..0i24.6053830.6083250..6086182...1.0..0.232.2808.36j1j1.....2.....1..gws-wiz-img.....0..0j35i39j0i67j0i5i30j0i8i30.6Fr3kMrKl30#imgrc=uyqugVdYBpJFYM:)