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The effect of herbal drink on digestive system diseases

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Abstract

This research explores the role of natural ingredients in treating digestive disorders, focusing on a combination of lemon, honey, vinegar, chamomile, and peppermint. The digestive system, a complex network of organs, plays a vital role in breaking down food and absorbing nutrients. However, many individuals suffer from digestive disorders such as indigestion, nausea, vomiting, and constipation, which can significantly impact quality of life. The study investigates the mechanisms behind these digestive problems and examines how each of the selected ingredients can help alleviate these conditions. Lemon, honey, vinegar, chamomile, and peppermint have been shown to offer various therapeutic benefits, including stimulating digestion, balancing acidity, reducing inflammation, and relieving intestinal discomfort. By combining these ingredients, a powerful herbal remedy emerges, which can improve overall digestive health and act as a natural supplement for conditions such as indigestion, bloating, and cramps. This research aims to provide a comprehensive understanding of how these natural substances can be used to support digestive health.

Keywords: diseases, related, digestive system

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تأثير مشروب عشبي على أمراض الجهاز الهضمي

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المستخلص

يستكشف هذا البحث دور المكونات الطبيعية في علاج اضطرابات الجهاز الهضمي، مع التركيز على مزيج من الليمون والعسل والخل والبابونج والنعناع. يلعب الجهاز الهضمي، وهو شبكة معقدة من الأعضاء، دورًا حيويًا في هضم الطعام وامتصاص العناصر الغذائية. ومع ذلك، يعاني العديد من الأفراد من اضطرابات هضمية مثل عسر الهضم والغثيان والقيء والإمساك، مما قد يؤثر بشكل كبير على جودة الحياة. تبحث الدراسة في الآليات الكامنة وراء هذه المشاكل الهضمية، وتبحث في كيفية مساعدة كل مكون من المكونات المختارة في تخفيف هذه الحالات. وقد ثبت أن الليمون والعسل والخل والبابونج والنعناع يقدم فوائد علاجية متنوعة، بما في ذلك تحفيز الهضم، وموازنة الحموضة، وتقليل الالتهاب، وتخفيف الانزعاج المعوي. من خلال الجمع بين هذه المكونات، يظهر علاج عشبي فعال، يمكن أن يحسن الصحة الهضمية بشكل عام، ويعمل كمكمل طبيعي لحالات مثل عسر الهضم والانتفاخ والتقلصات. يهدف هذا البحث إلى توفير فهم شامل لكيفية استخدام هذه المواد الطبيعية لدعم صحة الجهاز الهضمي.

الكلمات المفتاحية: امراض، مرتبطة، جهاز هضمي

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معلومات البحث
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Introduction

Digestive system diseases are among the most common health problems in various societies, encompassing a wide range of disorders such as indigestion, peptic ulcers, colitis, irritable bowel syndrome, and others. With the growing global trend toward alternative and complementary medicine, medicinal herbs have emerged as a promising natural source for alleviating the symptoms of these diseases and improving digestive health.

Numerous studies have demonstrated that certain herbs, such as mint, ginger, chamomile, fennel, and anise, possess antispasmodic and anti-inflammatory properties. They also help regulate bowel movements and improve the secretion of digestive juices, which contributes to alleviating

symptoms associated with digestive system disorders.

This study aims to shed light on the effect of medicinal herbal drinks in improving some digestive system diseases by reviewing the medical literature and analyzing the results of using herbs in various clinical cases. The goal is to provide a scientific perspective that contributes to supporting the safe and effective use of these drinks as an adjuvant treatment option.

The first chapter of the research includes:

1- Research Problem: Many people suffer from digestive system diseases on a daily basis, which causes them many health problems that affect their daily lives, and continuous exposure to them can lead to long-term disorders.
2- Research Importance: Study of digestive system diseases that people face on a daily basis
3- Research goal: finding solutions and natural treatments to treat this disease
4- Research limits: starting on 20/5/2024 until 27/2 /2025 at the University of Babylon / College of Medicine
5- Define research terms: digestive system , content of it and functions of it .

The second chapter of the research includes:

First topic:

Definition of digestive system diseases

Second topic:

Discussing the symptoms of the disease, diagnosis, and the most common categories of this disease. It is treated in two ways: surgical intervention or through herbs and natural materials.

The third chapter of the research includes:

1- The results reached in the research : Most of the medications that have been discovered so far are pain relievers for this disease and not a cure
2- Research conclusions: Finding natural materials to treat the disease and alleviate its pain

Introduction to research:

First Chapter

The digestive system

The digestive system consists of an integrated group of organs that work in harmony to break down food into smaller molecules that the body's cells can benefit from. The digestive system is divided into two main parts: the digestive tract and the accessory organs.

The digestive tract is a tube that extends from the mouth through the chest, abdominal and pelvic cavities until it reaches the anus. The main organs in the digestive system include:

1- Mouth: Where the digestion process begins by chewing food and mixing it with saliva.
2- Pharynx: Transports food from the mouth to the esophagus.
3- Esophagus: Transports food to the stomach.
4- Stomach: Secretes acids and enzymes necessary for digesting food.
5- Small intestine: Where most nutrients are absorbed.
6- Large intestine: absorbs water and produces waste.

The length of the digestive system ranges between 5 to 7 meters in an adult, and the muscles of its walls contract continuously.

The organs attached to the digestive system include:

1- Teeth and tongue: help in the process of chewing and swallowing.
2- Salivary glands: secrete saliva, which contributes to the start of the chemical digestion process.
3- Liver: secretes bile that helps in digesting fats.
4- Gallbladder: stores bile and secretes it when needed.
5- Pancreas: produces digestive enzymes and hormones that regulate blood sugar levels.

These organs contribute to the digestive process by helping in the chemical breakdown of food and producing and storing secretions that are secreted into the digestive system through special pathways.

In general, the digestive system performs the following basic functions:

1- Swallowing: Food enters the body through the mouth and passes through the digestive system.
2- Excretion: Secretion of saliva, digestive juices, and bile.
3- Digestion: Mechanical and chemical breakdown of food into its simple components.
4- Absorption: Transfer of nutrients from the digestive system into the bloodstream.
5- Defecation: Expulsion of undigested waste through the anus.

These processes work together to enable the body to benefit from nutrients and get rid of waste in an effective manner.[1]

Second Chapter

Digestive system diseases:

Mechanism of digestive system diseases and the role of ginger, whose components we will discuss in the third chapter, in treating them:

1- Indigestion: is a condition caused by inefficient digestion, leading to a variety of symptoms such as bloating, pain or burning sensation in the stomach, gas and belching, nausea, weight loss, and gurgling sounds from the abdomen. [2]
2- Nausea & vomiting: are two important defense mechanisms to protect the body from ingesting or digesting potentially toxic substances. Nausea is the uncomfortable feeling of wanting to vomit, while vomiting (emesis) is the physical process that leads to the forceful expulsion of the contents of the stomach and intestines through the mouth. Vomiting is often preceded by dry vomiting (regurgitation), where the contents of the digestive tract are pushed into the esophagus without being completely expelled. Although nausea and vomiting often occur together, in some cases a person may experience severe nausea without vomiting, or vomiting may occur without feeling nauseous. This may be caused by toxins, medications, bacteria, viruses, or fungi entering the digestive system or the gastrointestinal tract. [3] , [4]
3- Constipation : is a common problem affecting the digestive system, and it is caused by a number of factors, including slow bowel movements, lack of fluids in the stool, and poor coordination between the nerves and intestinal muscles. Constipation occurs as a result of some reasons, such as:

1. Slow bowel movements: Weak intestinal motor activity contributes to delaying the transfer of waste from the small intestine to the large intestine, which leads to the absorption of more fluids and increases the hardness of the stool.
2. Lack of fluids: Decreased fluid intake or increased absorption may lead to dry stools, making their passage more difficult.
3. Neuromuscular coordination disorder: Weak nerve signals or delayed response of intestinal muscles can lead to irregular bowel movements. [5]

Third Chapter

Herbal drink components:

1- Vinegar: Vinegar contains several components that can be beneficial for the digestive system:

1. Acetic acid: It is the main component in vinegar, and it plays a role in stimulating the secretion of digestive acids, which facilitates the breakdown of food and the absorption of nutrients. [6]
2. Probiotics: In natural fermented vinegar such as raw, unfiltered apple cider vinegar, the "mother" is a source of beneficial bacteria that contribute to maintaining gut health and improving the microbial balance in the digestive system. [7]
3. Enzymes: The enzymes found in natural vinegar help break down food more effectively, which enhances the digestive process in general. [8]
4. Polyphenols and antioxidants: Vinegar, especially that extracted from fruits such as apple cider vinegar, contains antioxidants that fight free radicals and reduce inflammation in the digestive system. [9]
5. Organic acids: Vinegar contains acids such as acetic and malic acids that help improve bowel movements and relieve bloating and gas problems. [10]

2- Lemon: are rich in natural ingredients that help relieve digestive symptoms. The most prominent of these ingredients are:

1. Vitamin C: It enhances the immunity of the digestive system, which protects the stomach lining from oxidation and inflammation. It also helps improve the absorption of iron from foods, thus supporting the health of the digestive system in general. [11]
2. Fiber (especially pectin): Fiber is an important factor in improving bowel movement, which alleviates constipation problems. It also contributes to feeding beneficial bacteria in the intestines, which enhances the health of the digestive system. [12]
3. Organic acids (such as citric acid): These acids enhance the secretion of digestive juices, which helps in digesting food and absorbing nutrients better. They also contribute to balancing the acidity of the stomach, which relieves symptoms of indigestion and bloating. [13]
4. Phenolic compounds (such as flavonoids): They are characterized by their antioxidant and anti-inflammatory properties, which contribute to calming irritation of the stomach and intestines. [14]
5. Water: Water is an essential element in hydrating the digestive system and facilitating bowel movement, which contributes to alleviating constipation.

3- Honey: The effect of honey components on the digestive system:

1. Natural sugars (fructose and glucose):
   Fructose is slowly absorbed in the intestines, which reduces digestive disorders.
   Glucose is quickly absorbed and provides immediate energy, which reduces the feeling of lethargy after eating.
   Both act as prebiotics, meaning they feed the beneficial bacteria in the intestines, such as Lactobacillus and Bifidobacteria, which promotes the balance of the microbiome and improves digestion. [15]
2. Digestive enzymes (such as amylase and invertase):
   Amylase helps break down starches into simpler sugars, making them easier to digest and absorb in the small intestine.
   Invertase converts sucrose (table sugar) into glucose and fructose, which helps prevent indigestion caused by complex sugars.
   The presence of these enzymes makes honey soothing to the stomach and reduces the feeling of bloating. [16]
3. Antioxidants (flavonoids and polyphenols):
   They protect the stomach lining from the harmful effects of free radicals.
   Quercetin and catechin (the most famous flavonoids in honey) have anti-inflammatory properties, which relieve intestinal irritation.
   They also help speed up the healing of gastric ulcers thanks to their antioxidant and anti-inflammatory properties. [17]
4. Organic acids (such as gluconic acid): Gluconic acid naturally increases stomach acidity, which helps break down food and improve digestion.It contributes to the balance of the stomach's pH, which prevents acid reflux and indigestion. [18]
5. Antibacterial elements (hydrogen peroxide and methylglyoxal):Hydrogen peroxide occurs naturally in most types of honey and acts as an antibacterial, which helps prevent intestinal infections.Methylglyoxal is found particularly in Manuka honey, and is effective against Helicobacter pylori, the bacteria responsible for stomach ulcers.These ingredients promote digestive health by preventing the growth of harmful bacteria and promoting a healthy bacterial environment. [17]
6. Water:It helps moisturize the intestines and facilitate stool movement, which reduces constipation.The presence of water with dietary fiber improves stool consistency and prevents dehydration in the colon.

4- Chamomile flower:

Chamomile flower contains active ingredients that have beneficial effects on the digestive system, including:

1. Flavonoids (such as apigenin and quercetin):
   Apigenin has a calming and antispasmodic effect, which helps relax the muscles of the digestive system.
   Quercetin has anti-inflammatory properties, which relieves irritation of the intestines and stomach.
   These flavonoids help relieve symptoms associated with irritable bowel syndrome (IBS) such as bloating and cramps. [18]
2. Volatile oils (such as bisabolol and chamazulene):
   Bisabolol has antibacterial and anti-inflammatory properties, which helps soothe gastritis and intestinal ulcers.
   Chamazulene gives chamomile its calming and anti-allergic effect, and acts as an antioxidant that protects the lining of the stomach.

These oils help reduce gas and bloating and soothe intestinal cramps. [19]

3. Coumarins: Act as anticoagulants and vasodilators, which enhance blood flow in the digestive tract and improve digestion.

   Also help relieve colic and pain caused by indigestion. [20]

4. Organic acids (such as ferulic acid):

   Have antioxidant and anti-inflammatory properties, which help protect the stomach lining from oxidative damage.

   Promote digestive health and help prevent disorders such as colitis. [21]

5. Bitter substances (Sesquiterpene lactones):

   Stimulate the secretion of digestive juices, which enhances food digestion and absorption of nutrients.Relieves nausea and improves appetite. [22]

5- Peppermint: Peppermint contains active ingredients that contribute to enhancing the health of the digestive system, including:

1. Menthol oil: Menthol oil is the active ingredient in peppermint, and has a soothing effect on the muscles of the digestive system. It helps relieve cramps and bloating, and contributes to relieving gas. [23] , [24]
2. Phenolic compounds: such as rosmarinic acid and other compounds that have antioxidant properties, which helps reduce inflammation of the digestive system and protects tissues. [25]
3. Fiber: Mint leaves contain small amounts of fiber that help promote bowel movement, which helps prevent constipation. [26]
4. Volatile oils: such as menthol and limonene, which stimulate the secretion of digestive juices and contribute to improving digestion and reducing symptoms of indigestion. [27]

How to prepare the mixture:

Put 250 ml of vinegar in a pot, add 200 g of mint, 5 ml of lemon, and 25 g of chamomile, then put them on the fire and boil them for 15 minutes. After that, remove the mint and chamomile from the mixture, then add 75 g of honey to the mixture, then boil the mixture again for 15 minutes.

Final conclusion:

The combination of ingredients such as lemon, honey, vinegar, chamomile, and mint in the treatment of digestive system diseases provides remarkable benefits thanks to the properties of each of them. Lemon acts as a digestive stimulant and balances the acidity level, while honey contributes to soothing stomach and intestinal inflammation and enhances the digestion process thanks to its antibacterial properties. As for vinegar, it is considered a stimulant to improve digestion and relieve gas and bloating, while mint helps relieve intestinal cramps and reduces the feeling of colic. As for chamomile, it is an effective natural sedative in relieving inflammation and intestinal cramps.

So, it can be said that these ingredients when used together form a powerful combination to improve digestive health, as they enhance digestion, relieve gas, reduce acidity, and help calm intestinal cramps. This natural combination can be a suitable option as a supplement to treat problems such as indigestion, bloating, and cramps, but caution should be exercised in some cases such as stomach ulcers or allergies to any of these ingredients.

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