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A thorough evaluation of the use of herbal medicine for the treatment of recurrent typhoid

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ABSTRACT

Typhoid fever, caused by *Salmonella Typhi*, remains a significant global health concern, particularly in regions with inadequate sanitation and healthcare infrastructure (Nagshetty *et al.*, 2010). Recurrent typhoid cases pose an additional challenge in the management of this infectious disease. While antibiotics are the primary treatment for typhoid, the emergence of drug-resistant strains and concerns regarding the overuse of antibiotics have led to an increased interest in alternative approaches, including herbal medicine. This comprehensive review aims to evaluate the use of herbal medicine in the treatment of recurrent typhoid. It provides a critical analysis of existing literature and research studies related to the effectiveness, safety, and potential mechanisms of action of various herbal remedies. Key herbal candidates, including Neem (*Azadirachta indica*), Ginger (*Zingiber officinale*), Turmeric (*Curcuma longa*), Garlic (*Allium sativum*), Basil (*Ocimum sanctum*), Andrographis (*Andrographis paniculata*), Echinacea (*Echinacea purpurea*), and probiotics, are discussed in detail. The review emphasizes that herbal medicine should be considered a complementary approach to conventional antibiotic therapy rather than a sole treatment. Herbal remedies may offer benefits in alleviating symptoms, supporting the immune system, and potentially assisting in the prevention of recurrent typhoid. However, caution must be exercised, as the quality and safety of herbal products can vary widely, and potential herb-drug interactions should be considered. Additionally, the importance of consulting with healthcare professionals, including herbalists or naturopathic doctors, for personalized guidance and treatment plans is underscored. Future research should focus on rigorous clinical trials to provide more conclusive evidence regarding the efficacy and safety of herbal medicine for recurrent typhoid, ultimately contributing to a holistic approach to its management. In conclusion, while herbal medicine holds promise, it

should be integrated thoughtfully into a comprehensive healthcare strategy for recurrent typhoid treatment.

Keywords: Typhoid, Hydration, Probiotics

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INTRODUCTION

Typhoid fever, caused by the bacterium *Salmonella typhi*, remains a significant public health concern in many parts of the world, particularly in regions with limited access to clean water and proper sanitation facilities (Zaki & Karande, 2011). The disease is characterized by high fever, gastrointestinal symptoms, and can lead to severe complications if not promptly treated. While antibiotics have been the cornerstone of typhoid treatment for decades, the rise of antibiotic resistance and concerns about their overuse have prompted a renewed interest in alternative therapeutic approaches. One such approach that has gained attention is the use of herbal medicine for the treatment of recurrent typhoid.

Recurrent typhoid cases present a unique challenge in clinical management. These cases involve the reappearance of typhoid symptoms after apparent recovery or relapses following antibiotic treatment (Griffin *et al.*, 2011). The recurrence of typhoid not only poses a burden on patients and healthcare systems but also raises questions about the effectiveness of conventional antibiotic therapy and the need for additional strategies to combat the disease.

Herbal medicine, rooted in traditional knowledge and practices, offers a potential avenue for addressing recurrent typhoid. Herbs have been used for centuries in various cultures to treat a wide range of illnesses, and some possess antimicrobial properties that could be beneficial in combating bacterial infections. However, the scientific evaluation of these herbal remedies, their safety, efficacy, and mechanisms of action in the context of recurrent typhoid are areas that require comprehensive exploration.

This review aims to provide a thorough evaluation of the use of herbal medicine for the treatment of recurrent typhoid (Gibani *et al.*, 2011). By examining existing research, clinical studies, and traditional knowledge, we seek to shed light on the potential benefits and limitations of herbal treatments in the context of typhoid recurrence. We will focus on specific herbs and herbal preparations that have been suggested as promising candidates for typhoid management and discuss their mechanisms of action, safety considerations, and possible interactions with conventional treatments.

It is important to emphasize that herbal medicine should not be viewed as a replacement for antibiotics in the primary treatment of typhoid fever, especially in severe cases (Bhutta, 2006). Instead, it should be considered as a complementary approach that may aid in symptom relief, support the immune system, and potentially reduce the risk of recurrence. Nevertheless, the use of herbal medicine for recurrent typhoid requires careful evaluation, standardization of herbal products, and guidance from healthcare professionals to ensure its safe and effective integration into the overall management of this persistent infectious disease. This review aims to contribute to a better understanding of the role that herbal medicine can play in the comprehensive treatment of recurrent typhoid. A comprehensive review of herbal options that have been used traditionally for typhoid management is as follows:

Neem (*Azadirachta indica*)

Neem is a tree native to the Indian subcontinent and is well-known for its medicinal properties. While neem has been traditionally used in Ayurvedic medicine for various health purposes, including its antimicrobial properties, it's essential to note that typhoid fever is a serious bacterial infection caused by *Salmonella Typhi*. Here's how *Azadirachta indica* (neem) may be used (Subapriya & Nagini, 2005).

Neem Leaves

Scientifically known as *Azadirachta indica*, have been used traditionally in some cultures for their medicinal properties, including their potential antimicrobial effects. However, it's important to emphasize that typhoid fever is a serious bacterial infection caused by *Salmonella Typhi*, and the primary treatment involves antibiotics prescribed by a medical professional (Pang *et al.*, 1998). Neem leaves should not replace antibiotics in the treatment of typhoid but may have a supportive role in symptom management and overall health. Here's how neem leaves may be used during typhoid.

Neem Tea

Boil neem leaves in water to make a neem tea. This tea can be consumed for its potential antimicrobial and immune-boosting properties. It may help in reducing the growth of *Salmonella Typhi* in the digestive tract (Saggu *et al.*, 2022).

Fever and Symptom Relief

Neem tea or neem leaf extracts may be used to help reduce fever and alleviate symptoms like headaches, body aches, and fatigue commonly associated with typhoid. Neem's anti-inflammatory properties may provide relief from some discomfort (Tomar *et al.*, 2009).

Digestive Health

Neem leaves may aid in maintaining digestive health. They can help soothe the gastrointestinal tract and reduce discomfort from symptoms like diarrhea or abdominal pain associated with typhoid. Neem's antimicrobial properties might support a healthier gut environment.

Oral Hygiene

Chewing neem leaves or using neem-based toothpaste may help maintain oral hygiene, as neem has natural antibacterial properties. Good oral hygiene is essential during illness and can help prevent additional infections.

Immune Support

Neem is believed to have immune-boosting properties. Including neem in your diet or using neem supplements may help support your immune system during recovery from typhoid.

Ginger (*Zingiber officinale*)

Zingiber officinale, commonly known as ginger, is a well-known herb and spice with various medicinal properties. While ginger can offer several health benefits, including its anti-inflammatory and digestive-aiding properties, it is not a direct treatment for typhoid fever. However, ginger can play a supportive role in managing some of the symptoms associated with typhoid (Crowley, 2007).

Nausea and Vomiting

Ginger is renowned for its anti-nausea properties and can be effective in alleviating nausea and vomiting, which are common symptoms of typhoid. You can consume ginger in various forms.

Ginger Tea

Steep fresh ginger slices or ginger powder in hot water to make ginger tea. Sip this tea to relieve nausea.

Ginger Chews or Candies

Ginger candies or chews can be a convenient way to keep nausea at bay.

Digestive Health

Ginger can aid in digestion and reduce abdominal discomfort, which may be helpful during typhoid recovery when gastrointestinal symptoms are common. Ginger tea or ginger-infused meals can be beneficial.

Anti-Inflammatory Properties

Typhoid can cause fever, body aches, and general discomfort. Ginger's anti-inflammatory properties may help alleviate some of these symptoms.

Hydration

Ginger tea can be a comforting way to stay hydrated during illness. Maintaining proper hydration is crucial for recovery from typhoid.

Turmeric (*Curcuma longa*)

Curcuma longa, commonly known as turmeric, is a well-known herb and spice with a wide range of potential health benefits. While turmeric has anti-inflammatory, antioxidant, and antimicrobial properties, it is not a direct treatment for typhoid fever. However, turmeric can play a supportive role in managing certain aspects of typhoid and promoting overall health during recovery.

Anti-Inflammatory Properties

Typhoid fever can lead to fever and general discomfort. Turmeric's active compound, curcumin, has strong anti-inflammatory properties and may help alleviate some of these symptoms.

Digestive Health

Turmeric can aid in digestion and may help reduce gastrointestinal discomfort, which is common during typhoid recovery. Turmeric can be included in meals or consumed as turmeric tea.

Immune System Support

Turmeric is believed to have immune-boosting properties. Including turmeric in your diet or taking turmeric supplements may help support your immune system during recovery from typhoid.

Hydration

Turmeric tea or golden milk (a beverage made with turmeric, milk, and other spices) can be a soothing and hydrating option during illness. Proper hydration is crucial for recovery from typhoid.

Antioxidant Benefits

Turmeric's antioxidants may help reduce oxidative stress in the body, which can be beneficial during illness. Turmeric can be a valuable addition to your diet during recovery from typhoid, helping to manage symptoms and promote well-being.

Garlic (*Allium sativum*)

Garlic (*Allium sativum*) is a common ingredient in many cuisines and has been traditionally used for its potential health benefits, including its antimicrobial properties (Choudhary *et al.*, 2022). Some laboratory studies have suggested that garlic extracts may exhibit antibacterial activity against certain strains of bacteria, including *Salmonella*, the bacterium responsible for typhoid fever. While garlic may have some antimicrobial properties, there is limited clinical evidence to support the use of garlic as a standalone treatment for typhoid. The effectiveness of garlic

in treating typhoid fever has not been well-established through clinical trials. The antimicrobial properties of garlic can vary depending on factors like the type of garlic used, its preparation, and the specific strain of bacteria involved. It may not consistently or reliably treat typhoid infection.

Basil (*Ocimum sanctum*)

Basil leaves have antimicrobial properties and can be used to make tea or as a seasoning in food. It is a well-known herb which relieves you of the inflammation and joint pains, which are quite common when you suffer from typhoid fever (Yang *et al.*, 2013). It can be infused with tea, can be boiled with water, or can be consumed with honey by the person suffering from typhoid. Also, basil can be infused with black pepper or fresh ginger juice for quick relief. The antibacterial properties of basil help in removing the bacteria that causes typhoid.

Andrographis (*Andrographis paniculata*)

Andrographis also known as "King of Bitters," and is used traditionally for various infections. It has antibacterial properties and may help in managing typhoid symptoms. This medicinal plant has been used in traditional medicine systems, particularly in Ayurveda and Traditional Chinese Medicine, for its potential health benefits, including its antimicrobial and immune-boosting properties. Some studies have suggested that Andrographis extract may have antibacterial effects, and can be used for the treatment of typhoid fever. While Andrographis has been studied for its potential antimicrobial properties, there is limited clinical evidence to support its use as a sole or primary treatment for typhoid fever. The effectiveness of Andrographis in treating this specific infection has not been widely studied or established through clinical trials. Typhoid fever can lead to severe complications if not promptly and effectively treated with proper treatments from healthcare provider. Delaying or avoiding appropriate antibiotic treatment can be life-threatening.

Echinacea (*Echinacea purpurea*)

Echinacea purpurea, commonly known as purple coneflower, is an herb that is often used in traditional and alternative medicine for its potential immune-boosting properties. However, there is no scientific evidence to support the use of Echinacea purpurea as a treatment for typhoid fever (Dabanka & Otchere, 2022). Echinacea is believed to boost the immune system and may assist in fighting off infections. It is often used as an herbal supplement. While Echinacea may have some potential immune-supporting properties and is sometimes used as a dietary supplement, it is not a substitute for medical treatment. If you suspect you have typhoid fever or have

been diagnosed with it, it is crucial to seek immediate medical attention from a healthcare professional. Prompt and appropriate medical care, is essential for managing this serious bacterial infection. While maintaining a healthy lifestyle and considering dietary supplements like Echinacea for general immune support can be beneficial to relieve the symptoms of typhoid fever.

Probiotics

While not herbs, probiotics can help restore the balance of beneficial bacteria in the gut, which can be disrupted during typhoid infection. Fermented foods like yogurt or kefir contain natural probiotics. Probiotics are live microorganisms that are believed to provide health benefits when consumed in adequate amounts. They are most commonly known for their positive effects on gut health and digestion. While probiotics may play a role in supporting overall health, they are not considered a primary or recommended treatment for typhoid fever. There is limited clinical evidence to support the use of probiotics as a standalone treatment for typhoid fever. The effectiveness of probiotics in treating this specific infection has not been well-established through clinical trials. While probiotics may be beneficial for general health, they are not a substitute for medical treatment when dealing with a serious bacterial infection like typhoid fever. If you suspect you have typhoid fever or have been diagnosed with it, it is crucial to seek immediate medical attention from a healthcare professional. Prompt and appropriate medical care is essential for managing this infection (Gryseels *et al.*, 2019).

Hydration and Rest

Hydration and rest are important aspects of the supportive care that can be beneficial during the treatment of typhoid fever. Here's how hydration and rest play a role in the management of typhoid fever.

Hydration

Typhoid fever can cause symptoms such as high fever, diarrhea, vomiting, and loss of appetite. These symptoms can lead to dehydration, which can be especially concerning, particularly in severe cases of the disease. Staying well-hydrated is essential to prevent complications associated with dehydration. Adequate hydration helps maintain electrolyte balance and supports the body's overall recovery (Luo *et al.*, 2020).

Rest

Typhoid fever often causes fatigue and weakness. Resting allows the body to conserve energy and focus on fighting the infection. Rest can help reduce the severity of symptoms and promote a faster recovery. While hydration and rest are

important for managing typhoid fever, they should be part of an overall treatment plan that includes antibiotic therapy. Hydration and rest are essential for targeting and eliminating the symptoms of typhoid fever.

Hydration and rest should be used in conjunction with antibiotic treatment to support the body's recovery and alleviate symptoms. Always follow your healthcare provider's recommendations for managing typhoid fever. Regardless of herbal remedies, it's crucial to stay hydrated and get plenty of rest when dealing with typhoid. Herbal teas like chamomile or peppermint can soothe and hydrate.

Consult an Herbalist

Recurrent or persistent typhoid fever is a serious medical condition that requires appropriate medical evaluation, diagnosis, and treatment by a qualified herbal healthcare provider. Always consult a qualified herbalist or naturopathic doctor for personalized advice and guidance on the use of herbal remedies for typhoid. They can recommend specific herbs and dosages tailored to your condition. Here are some important reasons why consulting a qualified herbal healthcare provider, rather than solely relying on a conventional medical practitioner, is essential for recurrent typhoid.

Accurate Diagnosis

Recurrent typhoid may be caused by various factors, including antibiotic resistance or underlying medical conditions. Accurate diagnosis is crucial to determine the cause and select the appropriate treatment.

Monitoring and Management

Healthcare providers can monitor your progress, adjust treatment as needed, and manage any complications that may arise.

Preventing Spread

Typhoid fever is a contagious disease, and healthcare providers can provide guidance on preventing its spread to others.

Safety and Efficacy

While some herbs may have potential health benefits, their safety and efficacy for treating typhoid fever should be observed promptly (O'Hara *et al.*, 1998).

If you or someone you know is experiencing recurrent typhoid fever, it is essential to seek medical attention promptly. A healthcare provider will conduct the necessary tests, determine the appropriate treatment, and ensure that the infection is properly managed. Additionally, if you are interested in using herbal remedies or alternative therapies as complementary approaches to support your overall health, it is advisable to discuss this with your herbal healthcare provider to ensure they are safe and compatible

with your disease symptoms.

CONCLUSION

In conclusion, a thorough evaluation of the use of herbal medicine for the treatment of recurrent typhoid underscores several critical points. While herbal remedies have been used in various cultures for centuries and may offer potential health benefits, they should not be considered a standalone or primary treatment for recurrent typhoid. Recurrent typhoid can be a complex and severe medical condition. It often requires targeted herbal therapy to address underlying issues such as antibiotic resistance or persistent infection. Accurate diagnosis of the underlying cause of recurrent typhoid is crucial. Herbal Healthcare provider may address the root cause or provide the necessary treatment for the specific symptoms of typhoid fever. The safety and appropriate dosing of herbal medicines can vary widely. Consulting with a qualified herbal healthcare provider ensures that treatments are administered safely and that any potential interactions or side effects are monitored. While herbal medicine may play a complementary role in supporting overall health and well-being, especially in conjunction with conventional medical treatment, it should not replace or delay appropriate medical care when dealing with serious infections like recurrent typhoid. Consulting with a qualified herbal healthcare provider is essential to ensure a comprehensive and evidence-based approach to diagnosis and treatment, ultimately leading to the best possible outcomes for individuals facing this challenging condition.

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