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## **HERBAL MEDICINES IN THE MANAGEMENT OF CHRONIC DISEASES**

**PRACTICAL SCHOOL REPORT**

**SUBMITTED IN PARTIAL FULLFILMENT OF THE REQUIREMENT FOR DEGREE IN PHARMACY UNDER THE FACULTY OF**

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## Abstract

The perceived benefit and the increasing cases of chronic diseases all over the world have made an interesting point regarding the application of herbal medicine in the management of chronic diseases. It summarizes recent findings from studies which explore the application of herbal remedies in chronic disease management. Herbal medicines for managing long-term illnesses have caught more eyes as lifestyle-related health problems grow and standard treatments show their limits. This summary brings together results from many studies looking into how people with ongoing health issues use plant-based remedies

## Background

Chronic diseases are at the forefront in almost the whole world with diseases, such as diabetes, hypertension, and hyperlipidaemia, topping the list. Most patients end up using complementary and alternative medicine, especially herbal medicine, to treat their conditions. Studies reflect a significant percentage of patients using herbal medicine, and this implies it is increasingly relevant in health care facilities.

## Key Findings

1. **Prevalence of Use:** Actually, studies showed that a big portion of patients suffering from chronic diseases are using herbal medicines. In a survey, for instance, 29% of its diabetic and hypertensive patients used herbal medicines while even higher prevalence rates in Thailand were found when studies revealed an average of 61% of patients using herbal remedies with hypertension<sup>[2][3]</sup>.

2 **Common herbs used:** Some of the most common herbs include turmeric, cinnamon, garlic, and Ashwagandha. These herbs possess therapeutic effects; for example, turmeric has anti-inflammatory and blood sugar-regulating effects; similarly, those herbs composed of cinnamon have decreased the blood glucose levels and enhanced lipid profiles<sup>[1][2]</sup>.

3. **Patient Demographics and Preferences:** Factors predisposing demographic patients to the use of herbal medicine include gender, education level, and rurality. Women and rural dwellers are more likely to make use of herbal remedies<sup>[3][6]</sup>. Often, patients prefer these alternatives for lower side effects compared to allopathic drugs, patient concerns have been cited as one of the main drivers of the preference for using herbal medicines<sup>[1]</sup>.

Herbal medicine is a promising route in the management of chronic diseases. Herbal medicine can offer adjunctive benefits to conventional therapy, but it must be in line with good communication between healthcare providers, staying alert to a number of remedies patients may be taking to ensure safe and effective care. Further studies are needed to validate the role of a variety of herbs in therapy and address concerns regarding the safety of herbal treatments.

## INTRODUCTION:

The management of chronic diseases has become a significant public health challenge, with a growing prevalence of lifestyle-related health issues and limitations in conventional treatments. In recent years, there has been increasing interest in the use of herbal medicines as complementary or alternative therapies for chronic disease management. This introduction aims to provide an overview of the current landscape and the potential role of herbal medicines in managing chronic diseases.

## Prevalence and Perception of Herbal Medicine Use

Studies have shown a high prevalence of herbal medicine use among patients with chronic diseases. For example, a cross-sectional survey in Thailand found that 35.9% of chronic disease patients reported using herbal medicines within the past year, primarily for long-term health conditions and general well-being <sup>[1]</sup>. Many users rated herbal medicines as helpful, with over half considering them very beneficial <sup>[1]</sup>.

## Herbal Remedies and Chronic Diseases

Certain herbal remedies have shown promise in managing symptoms of various chronic diseases. Commonly used herbs include turmeric, Ashwagandha, garlic, cinnamon, and green tea [3]. These herbal-based nutraceuticals are recognized for their potential health benefits, although more research is needed to confirm their efficacy and safety <sup>[3]</sup>.

## Challenges and Considerations

While herbal medicines are widely accepted and used by patients, their integration into chronic disease management raises concerns about drug-herb interactions, particularly among patients who are often on multiple medications <sup>[2]</sup>. Healthcare providers must be aware of these interactions to ensure patient safety and optimize treatment outcomes <sup>[2]</sup>.

## The Need for Further Research

To fully harness the potential of herbal medicines in chronic disease management, further research is essential to establish their safety, efficacy, and the mechanisms by which they may complement conventional treatment [3][4]. This knowledge will aid healthcare providers in making informed decisions regarding the incorporation of herbal remedies into patient care strategies.

In conclusion, the use of herbal medicines in managing chronic diseases presents both opportunities and challenges. As research in this field continues to evolve, it is crucial to strike a balance between traditional wisdom and modern scientific validation to ensure the safe and effective integration of herbal remedies into comprehensive chronic disease management approaches.

## Historical Perspective of Herbal Medicines in the Management of Chronic Diseases

Herbal medicines have a long history of use in the management of chronic diseases. Traditional medical systems like Ayurveda, Siddha, and Unani in India have utilized plant-based remedies for centuries to treat various chronic conditions. The use of herbal medicines for chronic diseases remains prevalent today, with studies showing high rates of use among patients with conditions like diabetes, hypertension, and hyperlipidaemia.

### Historical Context

#### 1. Ancient Practices:

- People have used plants to heal since ancient times. Old writings from Egypt, China, and India talk about how different herbs can cure illnesses.

- Take Ayurveda, for example. It's one of the oldest ways to treat people. It uses herbs to bring back balance and fix health problems.

## 2. Traditional Chinese Medicine:

- TCM has long used herbs to treat ongoing health issues like diabetes and high blood pressure. People in TCM often use herbs like Ginseng and Licorice because they think these plants help with health.

## 3. European Herbalism:

- Herbal medicine became popular in Europe during the middle Ages. Herbalists would give out local plants to cure different sicknesses. They followed the "Doctrine of Signatures," which told them to pick herbs based on how they looked.

## Modern Integration and Usage

### 1. Contemporary Research

- New studies show a comeback in herbal medicine use among people with long-term illnesses. A study in Thailand revealed that 93.5% of patients with chronic conditions said herbal medicine helped them manage their health <sup>[5]</sup>.

- Scientific research backs up the effectiveness of certain herbs like Turmeric and Ashwagandha to treat lifestyle-related health issues such as obesity and diabetes <sup>[6]</sup>.

### 2. Patient Preferences:

- A lot of patients like herbal remedies because they think they're safer and have fewer side effects than regular drugs. Research shows that 68.3% of patients thought herbal medicines worked well even though some knew they could have bad effects <sup>[7]</sup>.

- Doctors often add herbal medicines to treatment plans because patients want them and believe in natural remedies due to their culture.

### 3. Challenges and Considerations:

- Herbal medicines might help, but they can also cause problems when mixed with other drugs. They also don't have standard doses. One study found that 92.3% of patients could have at least one problem from mixing drugs and herbs, which shows we need to be careful <sup>[8]</sup>.

- We need rules to make sure herbal products are safe and work well, since many people use them without asking a doctor.

Looking back at herbal medicines shows us they've been around for ages, and they're still changing as modern medicine grows. More people are getting interested in other ways to heal, so adding herbal medicine that's backed by science to long-term health care might help patients in many ways. But we need to keep studying these herbs to make sure they're safe and work well.

This mix of old and new ideas shows why it's key to know both how people used herbs in the past and how we use them now to help with long-lasting health problems.

# Historical Perspective of Herbal Medicines in the Management of Chronic Diseases

Herbal medicines have been utilized for centuries in various cultures as a primary method for managing chronic diseases. Their historical significance is evident in traditional medical systems, including Ayurveda, Traditional Chinese Medicine (TCM), and indigenous practices worldwide. This overview explores the evolution of herbal medicine in chronic disease management, highlighting its contemporary relevance and integration into modern healthcare.

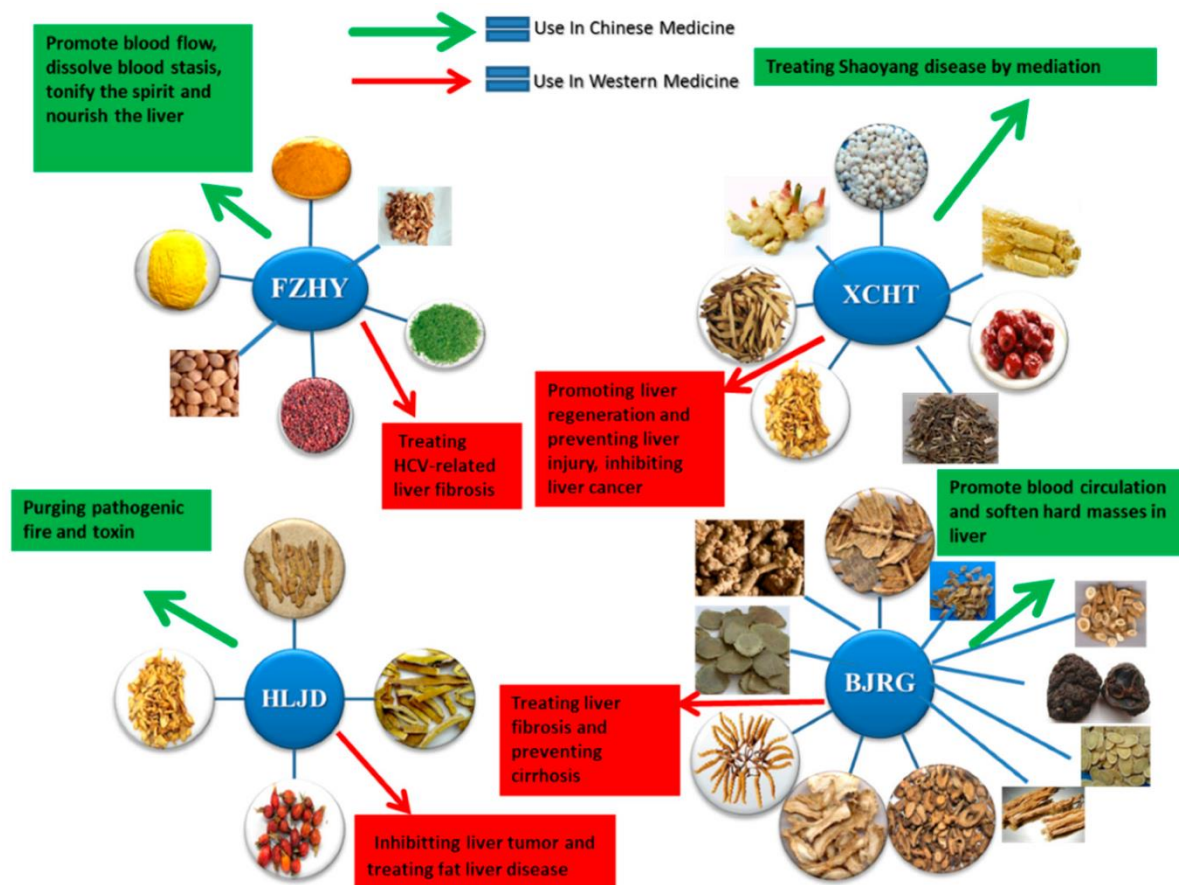
## Traditional Use of Herbs

Many herbs have been traditionally used in Ayurveda and other traditional systems to manage chronic diseases:

- **Turmeric** has been used for its anti-inflammatory and antioxidant properties
- **Ashwagandha** is an adaptogen used to reduce stress and improve overall health
- **Indian gooseberry (Amla)** is rich in vitamin C and used to support immune function
- **Aloe vera** is used topically and internally for its healing and soothing properties
- **Neem** has been used as an antimicrobial and anti-inflammatory agent
- **Flaxseed** is used for its high omega-3 content and fibre
- **Cinnamon** is used to help manage blood sugar levels
- **Green tea** is valued for its antioxidant content and potential health benefits

## Herbal Medications in Chronic Disease Treatment Management

The role of herbal medicine is also recognized in chronic disease management. Most of the available studies indicate that patients regard herbal medicine as adjunct or added modalities to conventional therapy. This review summarizes recent literature on the effectiveness of herbal medicines in chronic disease management.



## Patient Beliefs and Use

- High Confidence of Efficacy:** Users of herbal medicine are confident that herbal medicines are effective. For instance, although 68.3% of patients said they had good effects from herbal treatment, 86.6% said that herbal medicines were as effective as conventional medicines for certain diseases <sup>[9]</sup> <sup>[10]</sup>. In Thailand, 93.5% of chronic diseases patients found herbal medicine to be helpful <sup>[11]</sup>.
- Common Herbs Used:** The common herbs used include garlic, lemon, and cinnamon, which also comprise some of the treatments against conditions like hypertension and diabetes <sup>[9]</sup> <sup>[11]</sup>. Garlic was quoted to be the most common among hypertensive patients as 20% had used it <sup>[10]</sup>.
- Concurrent Use with Allopathic Medication:** The vast majority of patients used herbal remedies concurrently with allopathic treatments. In one survey, 30% of the herbal users reported that this was more effective than either treatment alone <sup>[10]</sup>. Once again, it presents a growing risk for herb-drug interactions.

## Efficacy in Specific Conditions

Herbal medicines proved their effectiveness in treating a large variety of chronic conditions.

**-Hypertension and Diabetes:** Evidence for antihypertensive properties of some herbs like garlic and cinnamon exists, thus managing the blood sugar levels. However, rigorous clinical studies are few on record <sup>[9]</sup> <sup>[11]</sup>.

**- Inflammatory Disorders:** Herbal treatments have been scientifically proved to cure inflammatory conditions such as arthritis and gastrointestinal disorders <sup>[12]</sup>.

## Safety and Side Effects

Although vast numbers of these users report no side effects from their herbal medicines, 85.7% in one such study, others have experienced gastrointestinal issues or drug interactions with prescribed medications<sup>[9][10]</sup>. Such circumstances indicate a dangerous lack of professional guidance in the use of these remedies and underscore the need for healthcare providers to explore the topic of herbal use with their patients.

The efficacy of herbal medicines on chronic diseases seems promising, based on the existing patients' perceptions and preliminary studies. However, clear clinical trials are heavily required to support these claims and ensure safe usage together with conventional therapies. Hence, healthcare practitioners are advised to stay updated regarding their patients' use of herbal remedies so as to provide comprehensive care while preventing potential risks associated with herb-drug interactions.

## Types of Chronic Diseases

1. **Cardiovascular disease:** These diseases relate to disease conditions that involve the heart and blood vessels, including hypertension and coronary artery disease.
2. **Diabetes:** A metabolic disorder characterized by prolonged durations with a high content of blood glucose
3. **Chronic Respiratory Diseases:** Mostly referred to as breathing conditions, including COPD and asthma.
4. **Cancer:** Those conditions characterized by uncontrolled cell growth that can occupy different parts of the body.
5. **Chronic Kidney Disease:** gradual loss of kidney function.
6. **Arthritis:** inflammation in the joints causing pain and stiffness in them

Current Management Strategies for Cardiovascular Disease Using Herbal Medicines

## Cardiovascular diseases

Cardiovascular diseases, also abbreviated as CVDs, continue to be one of the leading causes of mortality across the globe, with an approximate annual death rate of 30%. The escalation in the prevalence of CVD has created a great deal of concern with regard to alternative treatment strategies, particularly herbal medicines. The following response scrutinizes current management strategies involving herbal medicines for CVD on the basis of their efficacy, mechanisms of action, and safety considerations.

## Efficacy of Herbal Medicines

Herbal medicines are considered to be applied for treating cardiovascular diseases, such as hypertension, dyslipidaemia, atherosclerosis, and heart failure, among others. A lot of studies have been carried out to determine the fact that a good number of medicinal plants contain bioactive compounds that may be very important in enhancing cardiovascular health. Some include the following:

Cartages species; It has been discovered that this species is very useful in treating ischemic heart disease and is said to improve the condition of the heart.

Ginseng: Studies have shown that ginseng is cardio protective and is also good for cardiovascular health in general.

- Ginkgo biloba: Believed to have the putative potential for improving blood flow and alleviating symptoms of cardiovascular diseases.

- Ganoderma lucidum: Holds properties that can modulate pathways of inflammation and oxidative stress in cardiovascular tissues <sup>[13] [14] [17]</sup>.

Systematic reviews indicated that herbs may modulate key risk factors for cardiovascular diseases through the modulation of lipid profiles, regulation of blood pressure, and pathways involved with inflammation<sup>[15][16]</sup>.

### **Mechanism of action**

There are various mechanisms whereby herbal medicines exert therapeutic effects in the management of CVD:

- Antioxidant Activity: There are flavonoids and polyphenols present in herbal remedies that are free radical scavengers. Oxidative stress is one of the strong contributors to the progression of CVD, with which herbs scavenge free radicals

- Anti-inflammatory effects; curcumin and resveratrol inhibit inflammatory mediators by hindering progressions of atherosclerosis and other cardiovascular diseases <sup>[16]</sup>.

- Cholesterol Regulation: Plant sterols present in many herbs inhibit the absorption of cholesterol in the intestines and may, consequently, assist an individual in managing dyslipidaemia <sup>[13] [17]</sup>.

- Vasodilation: Some herbal medicines work as a vasodilator, and the mechanism is through the release of nitric oxide, which increases blood flow and lowers blood pressure <sup>[14]</sup>.

- Adverse Effects and Interaction: Even though they are completely safe, the use of herbal remedies can cause unwanted side effects or reactions with standardized medications. Long-term use without proper monitoring has hazards such as an increased risk of cardiovascular events <sup>[17]</sup>.

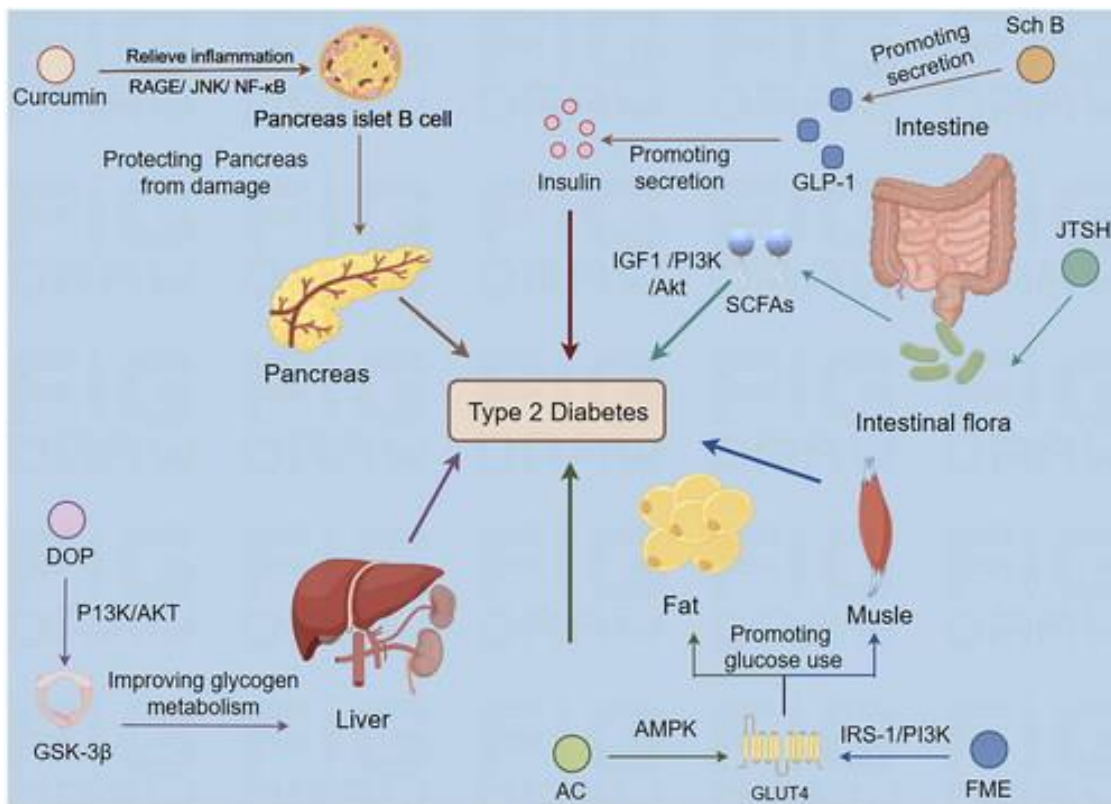
Lack of Standardization: Preparations and dosages for herbal products vary greatly in preparations, resulting in differential efficacy and safety. There is, therefore, a necessity for formulated standardization to provide uniform therapeutic effects <sup>[15] [16]</sup>.

- Clinical Evidence: Promising data exist for the use of herbal medicines in CVD, but stronger clinical studies must be conducted to establish their safety profiles and confirm their effectiveness compared to standard treatments<sup>[14][16]</sup>.

Herbs have been known to be a promising alternative in the treatment of cardiovascular diseases through various mechanisms that target significant risk factors. Integrating these therapies into the clinical arena would, however need further evaluation on their safety, standardization, and further investigation. Public demand for herbal remedies is likely to increase, which underscores the need to make more critical clinical evidence supporting the use of herbal medicines in modern cardiovascular medicine.

## Current Management Strategies for Diabetes Mellitus Using Herbal Medicine

Doctors now add herbal medicine to standard treatments to manage diabetes mellitus (DM). This approach has gained importance in places like India and Thailand where people often use traditional remedies. Here's a look at current methods how well certain herbs work, and things to think about when using them.



### How Well Herbal Remedies Work

1. Cinnamon: - Cinnamon might help lower blood sugar levels and make lipid profiles better. Research shows that taking cinnamon can reduce body weight and waist size in people who are overweight. This suggests it helps the body use insulin more effectively <sup>[18][19]</sup>.
2. Turmeric: - Turmeric has an influence on inflammation and oxidation due to its active compound curcumin. People think it helps with insulin sensitivity and cuts down on diabetes-related issues <sup>[18]</sup>.
3. Ashwagandha: - Ayurveda often uses this adaptogenic herb. Studies show it might lower stress and worry, which can help control blood sugar by boosting overall health <sup>[18]</sup>.
4. Aloe Vera: - Aloe Vera looks promising to lower fasting blood glucose in people with diabetes. Many eat its gel or put it on their skin to get health perks <sup>[18]</sup>.
5. Ginger: - People have used ginger to treat various health problems, including diabetes, for a long time. Research hints that it might make insulin work better and bring down blood sugar <sup>[21]</sup>.

### Prevalence of Using Herbal Medicine

Surveys in recent years have shown that there is a high prevalence of herbal medicine use among patients with chronic diseases like diabetes mellitus:

- In Thailand, it was reported that approximately 20% of diabetes patients admitted to using herbal medicines in the last three months <sup>[19]</sup>.

- A cross-sectional study conducted in Turkey reported that 12.7% of diabetic patients used cinnamon particularly for the treatment and control of their condition <sup>[20]</sup>.

### Use of Herbal Medication

Although herbal medicines have potential benefits, several considerations are involved:

-Interactions with Conventional Medications: Herbal remedies often interact with the prescribed medications taken by the patients. They could either decrease the effectiveness of the prescribed drugs or lead to adverse effects <sup>[21]</sup>. Patients are always advised to inform their healthcare providers about any herbal product they are using.

Quality and Regulation: The quality of herbal products varies widely. As unregulated herbal medicines may lack standard levels, it should be procured from good suppliers <sup>[21]</sup>.

Conclusion - Gaps in Research a tremendous increase in interest in the use of herbal medicine for controlling diabetes has occurred. Furthermore high-quality clinical trials are warranted to determine standard dosing requirements, efficacy, and safety profiles for these medicines <sup>[18] [22]</sup>.

Herbal medicine promises much for use as an adjunctive strategy in the management of diabetes mellitus. While some herbs-for example, cinnamon and turmeric-do show evidence of efficacy, healthcare providers must remain alert to possible interactions with conventional therapy and the quality of herbal products. Continued research will be necessary to appropriately understand these natural remedies in the context of chronic disease management.

### Present Day Management of Chronic Respiratory Diseases with Herbal Medicine

Chronic respiratory diseases, which include COPD and asthma, represent a degree of challenge to the health services of almost every nation in the world. Although conventional treatment nearly exclusively takes the form of pharmacologic interventions, there has been growing interest in using herbal medicine as an adjunctive strategy. This response summarizes the current management strategies involving herbal medicine for chronic respiratory diseases based on recent findings.

#### Traditional Therapy

##### 1. Medications

- Bronchodilators: These are the mainstay of treatment in COPD for increasing air flow and controlling symptoms. Long-acting muscarinic antagonists and long-acting  $\beta$ 2-agonists are the examples of a bronchodilator <sup>[23]</sup>.

- Inhaled Corticosteroids: These drugs are added to the bronchodilators along with administering in the majority of patients <sup>[23]</sup>.

- Pulmonary Rehabilitation: Any intensity program that provides exercise training, education and support, aiming to improve the physical and psychological condition of patients <sup>[23]</sup>.

- Long-term Oxygen Therapy: For patients with severe COPD, aimed at improving survival and quality of life [23].

## 2. Lifestyle Modifications:

- Smoking cessation is essential to avoid exacerbations and disease progression [23].

## Role of Herbal Medicine

Herbal medicine is becoming increasingly studied as a potential adjunct therapy for chronic respiratory diseases. Various studies have been done on herbal remedies that have reported numerous benefits, as follows:

### 1. Observations of Efficacy:

-A systematic review of numerous herbal medicines shows substantial, statistically significant improvements in pulmonary function as well as symptomatic relief compared with the placebo or no treatment [24][26]. Some of the notable herbs are:

- Panax Ginseng: Shown to enhance respiratory function and reduce symptom scores [24].

- Echinacea: Shown to provide an improvement in clinical trials in the respiratory function [24].

- Liquorice (Glycyrrhizin glabra) and Black Cumin (Nigella sativa): These herbs are immunomodulatory and anti-inflammatory. They are useful in respiratory diseases [25].

### 2. Clinical Evidence:

A prospective observational study demonstrated significant improvements in symptoms of the lower respiratory tract among patients with COPD treated using customized herbal therapy for a period of 12 weeks [4]. No severe adverse events were found, but the quality of life had been heightened.

### 3. Mechanism of Action:

- Bioactive compounds from these herbs are often characterized by anti-inflammatory, antioxidant, and immunostimulatory activities that could potentially tackle the underlying pathology of chronic respiratory diseases [25] [27]. The flavonoids present in most plant-based medicines have been demonstrated to significantly reduce lung inflammation.

## Challenges and Considerations

Even though promising results have been portrayed, several challenges remain:

Lack of Standardization - Most herbal remedies lack standardization in terms of dosages and formulation, hence limiting the generalizability of findings to other studies [23][24].

More double-blind, randomized controlled trials are required to demonstrate the efficacy and safety of specific herbal interventions [23] [24].

Herbal medicine indeed offers a valid alternative approach in the treatment of chronic respiratory diseases such as COPD and asthma. While conventional methods are essential to these diseases, herbal medicinal treatments may complement the idea of treatment and improvement in outcomes through symptom relief and better quality of life. Future investigation into appropriate protocols must follow rigorous clinical trials.

## Current Management Strategies for Cancer Using Herbal Medicine

Over the years, interest in the integration of herbal medicine in cancer management as an adjunct or supplemental strategy to conventional treatments has gained much momentum. The therapy provides both adjunctive and supportive treatment that increases drug efficacy, minimizes side effects, and improves the general quality of life of cancer patients. A glimpse of current management strategies that involve herbal medicine in cancer treatment is outlined below.

### 1. Mechanisms of Action

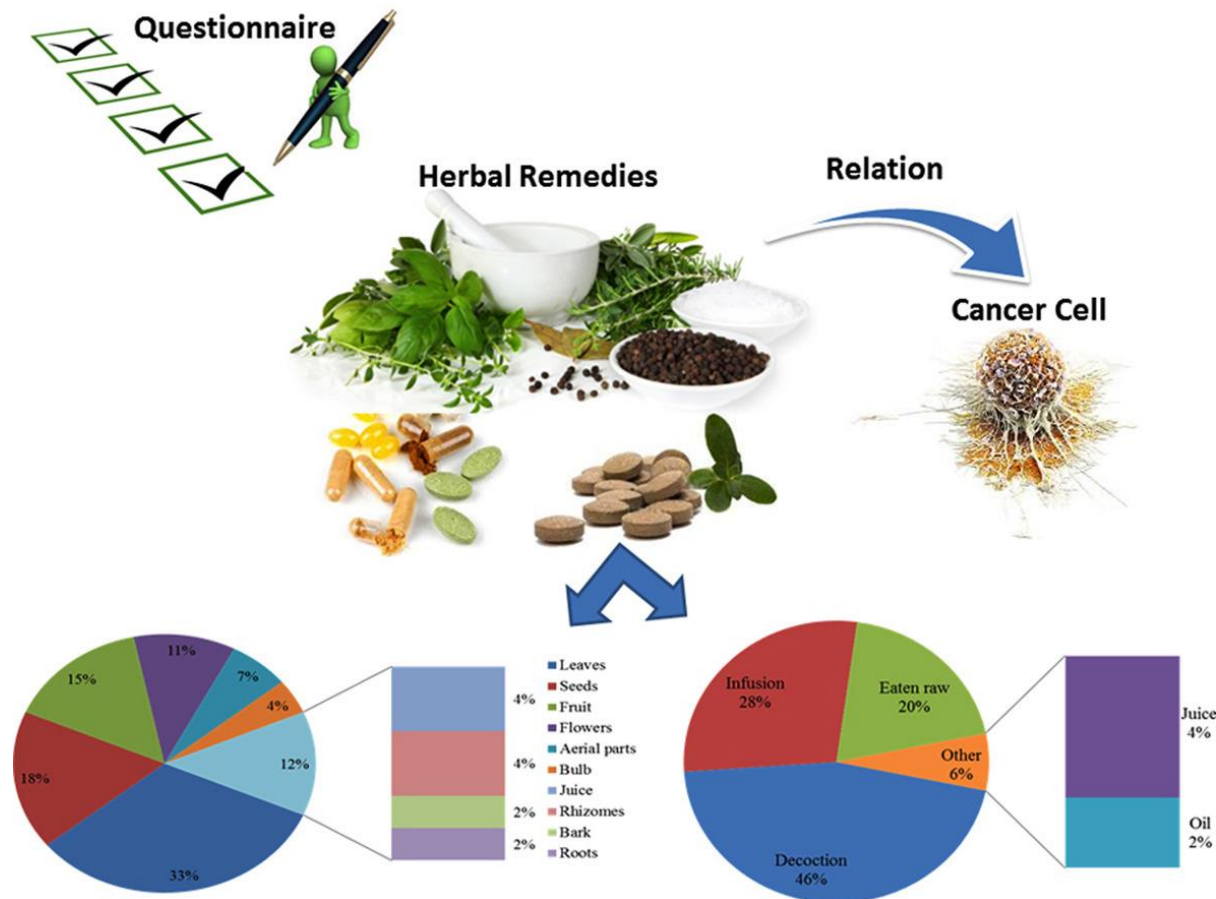
Herbal drugs act through several biochemical pathways to exhibit their anticancer activities:

- Antiproliferative effects: The anticancer drugs curcumin and berberine prevent the proliferation of cancer cells and induce apoptosis. This mechanism of action is most commonly linked with curcumin and berberine
- Immune Modulator: The herbal drugs stimulate the immune mechanism to combat the disease more effectively in the body <sup>[29] [30]</sup>.
- Herbal Supplements against Chemotherapy Side Effects: Numerous herbal supplements are used to minimize the toxic effects of conventional therapies such as fatigue and nausea <sup>[31] [32]</sup>.

### 2. Popular Herbal Medications

Several herbal medicines have been promising in clinical practice:

- Curcumin: Curcumin has anti-inflammatory and anticancer properties, especially breast cancer <sup>[28] [30]</sup>.
- Ginseng: Enhance the immune system and help in the reduction of cancer-related fatigue <sup>[28] [29]</sup>.
- Artemisinin: Present in sweet wormwood, tested for its potential to kill many types of cancer cells by initiating apoptosis in them <sup>[28] [30]</sup>.
- Berberine: Shows promise as an anticancer agent through the inhibition of Tumor growth and recovery of the efficacy of chemotherapy drugs <sup>[28] [29]</sup>.



### Clinical Implications

Herbal drugs are being used in adjuvant therapy in conjunction with traditional treatments:

- Adjuvant Therapy: Herbal drugs can be prescribed by more and more oncologists as adjuvants to chemotherapy or radiotherapy to improve patient survival rates and reduce side effects from other therapies [28][29].
- RCTs: More clinical trials are focused on the efficacy of herbal medicines in various types of cancers, thus ensuring more evidence-based practice [29] [30].

### 4. Challenges and Considerations

Despite these massive potential gains, there are a few challenges that must be overcome:

**Lack of Standardization:** Differences in herbal preparation lead to variations in results from clinical efficacy tests [28] [30].

- Future Research: Mechanisms of actions are still not identified and need to be properly studied in order to validate the clinical use of herbal medicines in oncology [30] [32].

- Herb-drug Interactions with Traditional Therapies: This should always be done prudently due to interaction potential between herbal medication and prescribed drugs, which needs professional guidance [31].

Herbal medicine might provide an avenue to improve treatment outcomes and quality of life in patients with cancer. Research into its application would be integrated into mainstream oncology after being validated through standardized protocols and the results of randomized clinical trials.

## Efficacy of Herbal Medicine in Chronic Disease Management

Herbal medicine is increasingly being recognized and accepted for the management of chronic diseases, yet there remains much debate and research on its efficacy and safety. Some studies have explored perceptions, use patterns, and potential benefits of herbal remedies among patients suffering from chronic illnesses.

### Perceived Efficacy

1. **Excellent Perception of Efficacy:** The majority of patients treated with herbal medicine believe that herbal medicine is effective. For instance, a study showed that 68.3% of the respondents believed in the effectiveness of herbal remedies while only 11.1% believed that the remedy had a partial effect [33]. Another study related to this topic established that 86.8% believed herbs were at least as effective as or even more effective than conventional medicines [34].

2. **Specific Chronic Conditions:** Medicinal herbs are used for chronic illnesses, for example, hypertension and diabetes. Among Thai chronic disease patients, 93.5% stated that herbal medicine is either very or somewhat helpful [33]. For most of its users, garlic was a medicinal herb applied to a variety of complaints, including hypertension [34].

### Patterns of Use

1. **Prevalence:** It is astonishing that such prevalence of patients suffering from chronic diseases makes use of herbal medicine. For instance, in Turkey, it was indicated that 29% of chronic disease patients made use of herbal remedies [33]. A similar trend was observed in Thailand, whereby the majority of patients utilized herbal treatments for long-term health conditions [35].

2. **Simultaneous Use with Conventional Medicine:** A lot of patients also use herbal remedies alongside allopathic medicines. In one survey, approximately 30% of the patient respondents reported using both concomitantly, mainly because they believe the concomitant treatment elevates the effectiveness [34]. However, this brings with it the issues for herb-drug interactions.

### Benefits and Risks

1. **Benefits:** A few herbal drugs could offer some practical benefits, such as the modulation of blood glucose and lipid levels among diabetic individuals [35]. Various herbs and plants have been reported to possess various pharmacological activities that may be useful in the treatment of chronic diseases [37].

2. **Risks and Safety Concerns:** Although there are apparent advantages, herbal medicine is used at risk primarily due to inadequately managed consumption. Many patients do not report their use of herbal medicines to health care providers; it may lead to unintentional drug-herbal interaction with prescription drugs [36]. 92.3% of patients had possible drug-herbal interactions according to a study.

There are many anecdotal reports and some clinical studies showing that herbal medicine can be an effective approach in managing chronic diseases. Many patients who were given these alternative modes of treatment have experienced satisfactory results by opting for them against mainstream treatments. Healthcare professionals must, therefore, be cognizant of the risks involved in using these drugs without prescription. Thus, more studies need to be performed so that guidelines could be established in ensuring that they would be used responsibly in chronic disease management approaches.

# Mechanisms of Action

## Introduction

Herbal medicine forms a part of the management approach for chronic diseases in using bioactive compounds to establish interactions with biological systems and thereby exert the desired therapeutic effects. Understanding the mechanism of actions involved by such herbal remedies will help use these remedies at an optimal level in modern health care.

### 1. Multitarget Interactions:

Herbal remedies typically have a complex combination of secondary metabolites such as alkaloids, flavonoids, and terpenes. These compounds interact with numerous biological targets, making them highly beneficial for chronic diseases involving various pathways. For instance, some of the metabolites could have hydrophobic and ionic bonding influences on proteins, thereby altering their activity and functionality<sup>[38][39]</sup>. With such a multitarget approach, herbal remedies can simultaneously address several symptoms or underlying causes.

### 2. Synergistic Effects:

Interactions between various compounds in herbal medicines may result in synergies whereby the overall therapeutic effect is more significant than the sum of the separate components. This is particularly true in complex herbal compositions, where inactive molecules could also increase the efficacy or bioavailability of their active counterparts<sup>[41]</sup>. Synergy plays an important role in the treatment of chronic conditions that usually do not respond well to single-agent therapies.

### 3. Network Pharmacology:

Recent studies have used the method of network pharmacology to clarify the mechanisms of specific traditional herbal prescriptions. As an example, Gan-Mai-Da-Zao Decoction was considered to identify active ingredients and their interactions towards the targets of diseases. This method revealed hundreds of active ingredients with high biological activity. Herbal medicines target the disease condition through an intricate network rather than an isolated pathway<sup>[40]</sup>.

### 4. Bioactivity and Efficacy:

Herbal medicines were found to have a variety of bioactivities, including anti-inflammatory, antioxidant, and antimicrobial activities. Such activities play significant roles in the management of chronic diseases such as diabetes, hypertension, and cardiovascular disorders. Success in such treatments is generally due to their immune-modulation capabilities or their ability to reduce oxidative stress<sup>[39][42]</sup>.

## Clinical Applications

The use of herbal medicines is highly prevalent among patients suffering from chronic diseases, which are widely applied alongside standard treatments. According to studies, the majority of patients use herbal remedies without consulting health professionals; hence, it becomes the responsibility of healthcare providers to be informed on these practices and inform the patients about potential interactions and adverse effects<sup>[42][43]</sup>.

Traditional herbal practices integrated with this scientific understanding will be crucial to enrich patient outcomes in the clinical management of chronic diseases as the interest in holistic and personalized healthcare increases.

## Challenges and Limitations in Using Herbal Medicine for Chronic Diseases

Herbal medicine has become popular among different patients suffering from chronic diseases, although the practice of using herbal medicine comes with several challenges and limitations. Such challenges cut across safety, efficacy, and even quality care to the patient.

### Safety Concerns

**Adverse Reactions:** Most herbal products are not well studied, which makes limited information available concerning their possible adverse reactions. Some herbs will cause dangerous reactions, which range from toxicity and interactions with conventional drugs<sup>[45][47]</sup>. For example, a large proportion of the users consider herbal medication safe and do not have side effects, which is far from the truth<sup>[45]</sup>.

- **Quality Control.** In the absence of regulation, many herbal medicines do not have to undergo strict quality control testing before being put on the market. This situation may lead to contaminated or misbranded products, creating further challenges to their proper usage<sup>[46][47]</sup>

### 2. Issues on Efficacy

It is interesting to note that many herbal remedies, although well established with their efficacy, most have not been put through testing or are documented inadequately. Hence, healthcare providers often cannot advise patients on these for chronic disease management<sup>[45][46]</sup>. Most people often think that herbal medicine is better than conventional treatment due to the wide anecdotal evidence rather than being scientifically validated<sup>[46]</sup>.

- **Self Medication Hazards:** Most of the patients are self-medicating with herbal products without consulting the healthcare providers, thus putting them at danger from ineffective treatment or dangerous interactions with prescribed drugs<sup>[44]</sup>. This is risky in older individuals since they might have concomitant therapy with multiple drugs.

### 3. Regulatory Issues

For this reason, the following matters have emerged regarding classification

Many nations consider herbal medicine to be a dietary supplement rather than a pharmaceutical. This generally signifies that before they are authorized for sale, herbal medicines are exempted from stricter demands in relation to safety and efficacy. As a result, unsafe products are generally available<sup>[45][46]</sup>.

- **Lack of Standardization:** Most herbal remedies lack standardization in dosage and preparation. As such, these drugs cannot promise any form of reliability in terms of effectiveness. Other challenges come in the form of variation in the quality of the plants since the growing conditions are different and the harvesting is not uniform in most places<sup>[47]</sup>.

### 4. Patient Awareness and Education

- **Limited Awareness:** Most of the patients do not receive adequate information regarding the perils of using herbal medicine. In fact, most research findings indicate that a high percentage of users do not report their

use of herbal products to their healthcare providers, which diminishes their ability to offer effective treatment planning <sup>[44]</sup>.

It may be related to cultural beliefs that prefer natural remedies against conventional treatment, especially if the latter doesn't suit well or may appear ineffective. The dissatisfaction with conventional treatments may bring about this belief to a greater extent in this case.

## CONCLUSION

There are numerous challenges in the integration of herbal medicine into the management of chronic diseases. This ranges from safety and efficacy to regulation and patient education. Healthcare providers should initiate discussions with patients on the use of herbal remedies and improve public awareness about the possible risks involved. Regulatory and control measures should also be improved to protect public health but permit the benefits of herbal medicine where appropriate.

The fact that herbal medicines are rapidly being explored as complementary therapies for chronic diseases reflects a great difference in public health strategies. As lifestyle-related health problems continue to be prevalent, novel strategies to tackle them are very much in demand. Firstly, conventional treatments are often less than satisfactory. Studies have revealed that a vast majority of patients with chronic diseases are turning towards herbal remedies. Many patients reported benefits and successful management of their illnesses.

Obstacles are still associated with herbs that have potential for symptom relief and well-being like turmeric, Ashwagandha, and garlic. Drug-herb interaction risk will be a critical issue, especially in those patients who are on multiple drugs. This is the reason why healthcare providers must be properly aware of their utilization of herbal drugs so that patients might be safely and effectively treated.

Further research will, therefore be crucial to fully reap the benefits of herbal remedies. Establishing their safety and efficacy and even optimal usage will empower healthcare professionals to seamlessly integrate these natural therapies into holistic care strategies. Conclusion In conclusion, although the integrated management of chronic diseases with herbal medicines presents opportunities and challenges, a balanced approach that harmonizes traditional knowledge with modern scientific validation will be vital to boost patient outcomes in this continuing evolution.

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