

**Date of Acceptance: 01stApr,2024****Date of Publication: 18th Apr, 2024****A REVIEW ON: CURRENT SCENARIO OF HERBAL MEDICINE AND FUTURE
PROSPECT****Dhavale Vaishnavi, Kadam Kalyani, Ghadage Sakshi, Khandekar Archana, A.V. Pore, S.K. Bais****Fabtech College of Pharmacy, Sangola -413307****Corresponding author Mail ID: kalyanikadam205@gmail.com****ABSTRACT:**

In India, herbal medicine is referred to as Ayurveda. This article aims to illustrate the therapeutic benefits of herbal medicines by giving a general overview of them. This review is centered on Current trends in Herbal Drugs. Increasing numbers of individuals worldwide are using medicinal plant items in the healthcare system in the last few years. Natural product markets and interest in conventional medical systems have grown as a result of the global need for alternative medicine. Herbal medicine offers the following: Pharmacovigilance, regulation of herbal medicines, formulation, safety testing, adverse drug reactions, drug interactions and clinical effectiveness.

It is possible to successfully study these traditionally utilized plants to uncover New Chemical Entity for treating acute and chronic diseases. As a result, a methodical evaluation was conducted on a small scale but with a large potential for growth. The market for herbal medications is expanding at a 15% yearly growth rate. The idea that all natural products are widely accessible, affordable, and safe is what is driving the growing acceptance and popularity of herbal therapy. To optimize the benefits of herbal medicine for health care systems worldwide, social, cultural, political, and economic settings must be taken into account in public health studies. We made an effort to thoroughly examine the state of herbal medicine use now in treating arrange of illnesses and related pharmacological concerns in light of the industry's brighter future prospects. Additionally, the necessity of further research into creating herbal drugs as contemporary therapeutic agents is discussed.

KEYWORDS: *Ayurveda, ADR [Alternative Dispute Redressal], Pharmacovigilance, Chronic Disease, Therapeutic agents*

INTRODUCTION

Herbal medicine, or HM, is the cornerstone of complementary and alternative medicine, which has been gaining global traction in recent years. Plant materials, sometimes known as herbal drugs, are used in this context to treat illnesses or injuries, preserve health, or promote healing. Whole plants or parts of plants may be used. The earliest known medical practice is the use of herbal remedies. There are many herbal preparations on the market for the treatment of mild to severe conditions. In some countries, herbal medicines also contain organic and inorganic active ingredients obtained from sources other than plants, but this is rare.[1]

In India, both rural and urban populations use herbal medications extensively. The idea that all natural goods

are safe is the only factor contributing to their acceptance and appeal. Because more people are realizing that natural products are safe, easy to find, and reasonably priced, the demand for herbal medicines, nutraceuticals, food products, cosmetics and other products is increasing in both developed and developing countries.[2] People have been using plants for healing purposes since before recorded history. According to Chinese and Egyptian papyrus texts, B.C. Many plants were used as medicine around 3000 years ago. Herbal remedies were employed in Indigenous societies healing customs, including Native American and African, and in the traditional medicinal systems produced by others, including Siddha, Ayurveda, Unani, and TCM.[3] Plant-based medications predominated human medical practices approximately 200 years ago. However, when more reliable synthetic medications were widely accessible, the Western world saw a sharp decline in the therapeutic usage of herbs, on the other hand, the wealth of information regarding medicinal herbalism was still beneficial to many developing countries. For instance, Traditional Chinese medicine (TCM), Unani medicine from the Middle East and South Asia Kampo medicine from Japan, Siddha medicine from India and Ayurvedic medicine are still widely used.[4]

Pharmacological Action of Herbal Drug:

1. Anti- inflammatory

Achillea millefolium L., native to Europe, is an annual plant known in medicine for its anti- inflammatory properties. The herb has long been applied externally to burns, wounds, and irritated or inflamed skin. Research has indicated that isoprenoids and phenolics, two types of secondary metabolites, are primarily responsible for the anti-inflammatory effects. In traditional medicine *A. Millefolium* water-based and alcohol-based extracts are taken internally to treat gastrointestinal and hepatobiliary problems as well as to act as an antiphlogistic agent. Sesquiterpenes' topical anti-inflammatory action results from their suppression of arachidonic acid metabolism. The three flavonoids present in the crude extract and developed in flavonoid fractionation are aspidflavin-7-O-glucoside, luteolin-7-O- glucoside, and routine. Two elements and crude plant extracts rich in dicaffeoyquinic acid and flavonoids inhibit human neutrophils. [5]

2. Antidiabetic Activity

People have been using herbs at home to treat diabetes since recorded history. [6] Many plants have been shown to have antidiabetic properties, including *Aconitum aconitum*, *Acacia nigra*, *Acacia nilotica*, Maidenhair fern, and Maidenhair fern. Ingredients of asparagus include: burdock, celery, marshmallow, aloe vera, amla, myrrh, eucalyptus bulb, ginseng, gymnema. *Citrus aurantium*, clover, black cumin and juniper, hedyotis are other plants in this group. [7-9]

3. Anticancer Activity

Research on medicinal plant products with anticancer properties is still ongoing, with the goal of creating medications to treat various types of tumours in humans. *Alangium lamarki*, *Acalypha fruticosa*, Medicinal plants used in cancer treatment include *Ficus sibirica*, *Ficus racemosa*, *Pimpinella zeylanica*, *Terminalia barbadensis*, *Tylophora indica*, *Catharanthus roseus*, *Asteria sibirica*, *Emblica emblica* and *Wrightiatinctoria*. The following products are used for the treatment of breast cancer: horse chestnut, cranberry, goji berry, centipede, centipede, peony, licorice, *Corydalis*, *curculigo*, *bupleurum*, *angelica* and turmeric. *Emblica officinalis*, *Nigella sativa*, and *Terminalia belleric* are the herbal medications used to treat pancreatic cancer. [10-11]

4. Analgesic Activity

Begonvil, *Schizonepeta*, *Glen*, *Grandiflora*, *Ficus*, *Dalbergia*, *Glen thiab* *Celandine*[12]

5. Antioxidant Activity

Reactive atoms, such as oxygen, can combine to produce beneficial products called free radicals, such as reactive oxygen species (ROS). Oxidative stress results from ROS because, at certain concentrations, they significantly exceed the ability of the body's natural antioxidant defiance mechanism. Disease processes may be triggered and accelerated by the ensuing harm to cells and organs. The following conditions have been linked to oxidative stress: inflammation, ischemia injury, cancer, ageing, atherosclerosis, and neurological illnesses. Healthy cells in the body can be attacked by free radicals, which can lead to a loss of structure and function. Free radicals can be neutralized or deactivated by antioxidants before they damage cells. For cellular and systemic health and wellbeing to remain at their best, antioxidants are vital.[13-14]

Table No. 1. Some Example of Herbal Drug [15]

<ul style="list-style-type: none"> • Common name: Cinchona • Botanical name: Cinchona officinalis • Family: Rubiaceae • Part used: Bark seed • Uses: Antipyretic 	
<ul style="list-style-type: none"> • Common name: Amla • Botanical name: Emblica officinalis • Family: Euphorbiaceae • Part used: Fruit • Uses: Antipyretic 	
<ul style="list-style-type: none"> • Common name: Bamboo • Botanical name: Bambusa vulgaris • Family: Graminae • Part used: Shoot; Seeds; Roots; Leaves • Uses: Antipyretic; Diuretic 	
<ul style="list-style-type: none"> • Common name: Satavari • Botanical name: Asparagus adscendens • Family: Liliaceae • Part used: Tuberous Roots • Uses: Antipyretic; Demulscient 	
<ul style="list-style-type: none"> • Common name: Neem • Botanical name: Azadirachtaindica • Family: Meliaceae • Part used: Leaves • Uses: Antipyretic 	
<ul style="list-style-type: none"> • Common name: Tulsi • Botanical name: Ocimum sanctum • Family: Labiatae • Part used: Leaves • Uses: Antipyretic; Antitussive 	

Standardization of Herbal Drug:

Knowledge and use of medicinal plants for the prevention, diagnosis and treatment of physical, mental or social conditions. [16] According to World Bank estimates, trade in raw materials, botanicals and medicinal plants is increasing by five to fifteen percent annually.[17-18]

People with chronic illnesses that are thought to be incurable, like diabetes, frequently notice For a feeling of control and psychological solace from acting, people with AIDS, arthritis, and other conditions turned to herbal remedies.[19]

Studies on herbal products that have not been verified and described in order for the product to be evaluated to be declared scientifically valid in order to guarantee manufacture of the concerned product is reproducible. Multiple research studies have revealed quantifiable differences in marker ingredients included in herbal remedies. Additionally, other deadly side effects, such as direct toxic consequences, have been documented recently. Interactions with medications, other medicines, allergic reactions, contaminant effects and impacts. Out of the ten most popular herbs in the US, systematic evaluations have found that only four are probably helpful, while the remaining almost 20,000 herbal items have very little evidence to support their efficacy.[20] Standardization is the first step in establishing chemical uniformity, biological activity and even quality. Programme of quality control for manufacturing and production. Thus, the tree types of herbal products that the EU has identified are:

- ❖ Those that contain ingredients (individual compounds or groups of compounds) having proven and established medicinal properties They are thought to be exclusively in charge of clinical efficacy.
- ❖ Ones having precisely characterized chemical components with pertinent pharmacological characteristics that are probably help enhance the efficacy of the treatment.
- ❖ Those in which the therapeutic action hasn't been linked to any component.

According to the guidelines provided in the text, standardization refers to modifying the formulation of herbal drugs to a specified composition of an element or set of compounds with established medicinal value. [21-22]

Marketing of Herbal Medicine:

Global scenario of Indian herbal drug. The Ayurvedic sector earns approximately Rs. 14,500 crores annually, while the pharmaceutical industry, which grew at a rate of 15%, brought in Rs. 14,500 crores annually. 23 billion Indian rupees. India has been exporting a significant number of medicinal plants and herbs in recent years. With an annual production of roughly 1.25,000 tones, India ranks second in the world for castor seed production. Some of the most popular products exported from India this year are Ishiguro, opium alkaloids, senna derivatives, periwinkle extract, cinchona alkaloids, ipecac alkaloids, solanine, diosgenin Yuan/16DPA, Menthol, Gudma Herb, Mehdi Leaves, Papaya Gum, Jasmine Oil, Agar Tree Oil, Sandalwood Oil,[24]

This leads to a very competitive and fragmented industry. Pharmaceutical giants and small pharmaceutical firms dominate the global herbal market. Multinational corporations are pushing regional and indigenous herbal businesses by growing into emerging nations in terms of product offerings, cost, and quality. The competition is fierce already and will only get more so. To produce the high-quality product needed to increase the market for herbal medicine, large enterprises are concentrating on extraction techniques and purification protocols. There are certain restrictions, including a insufficiently trustworthy research data to support the growth of the herbal business and erratic rules and authorities concerning quality control and patents.[25]

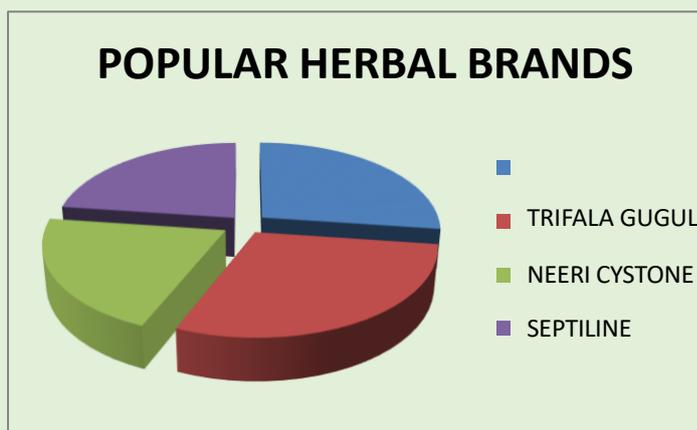


Fig. No.1: Popular herbal Brands

Stability Of Herbal Drug:

Stability testing helps determine the best storage location for pharmaceutical products to ensure quality safety (QSE) storage throughout shelf life. Verifying QSE for the herbal product, however, vastly more challenging than it is for a synthetic medication product when subjected to various storage conditions. Many factors, including chemical complexity, raw material variability in biochemical properties the action of enzymes present in plant products and the choice of stability indicators will make it difficult to evaluate the stability of plants.[26] Since the entire plant or herbal product is thought to comprise the active substance, stability testing of herbal medications presents a difficult risk. This is true regardless of whether components that have specific medicinal effects are identified. [27]

Challenges Of Herbal Drug:

An important task is to determine the use of herbal products and analyze toxicology, infectious diseases, etc. It is important to carefully evaluate conflicting information about. There are still important issues below.

- Pharmacology, toxicology, and clinical data systems are at risk; uncertainty communication.
- Pharmacovigilance knowing why adding dangerous additives is effective.
- Evaluation of drug interactions between participants and clinical trials.
- Standardization, performance measurement and security

Evaluating contradicting toxicological, epidemiological, and other data objectively, as well as verifying the usage of herbal ingredients, is a major difficulty. The following are still important concerns.

- Controlling within risk parameters Expression of ambiguity documents related to pharmacology, toxicology, and clinical.
- Pharmacovigilance knowing why adding dangerous ingredients is effective Assessing drug interactions Limitations on clinical trials and the number of participants.
- Normalization Evaluation of safety and effectiveness.

Regulatory Status of Herbal Drug:

Each country has a different legal position regarding herbal medicines. Folk wisdom about herbs and their traditional uses exists in developing nations. It is widely used in the medical community. However, there are no laws in these countries that would include commonly used medicinal herbs. [28] In India, the Drugs and Cosmetics Act (D and C) of for Ayurvedic, Unani and Siddha medicine.

The Department of AYUSH is the regulating body whose mandate it is for anyone manufacturing or selling herbal medications to once a manufacturing license has been obtained, if necessary. Phytotherapeutic agents are

herbal preparations that have been standardized and comprise complex mixes of one or more plants. The active elements in these preparations might be either raw or processed plant material. Over the past 15 years, there has been a noticeable increase in the global market for phytotherapeutics. This will amount to roughly \$7 billion and \$5 billion annually, respectively, for the European and American markets alone. [29-30]

Merits of Herbal Drug:

Herbal medications have the following benefits:

- Minimal or low cost.
- Effectiveness and strength.
- Enhanced ability to tolerate.
- Increased safeguarding
- Fewer negative effects.
- Complete availability.
- Eco-friendly

Demerits Of Herbal Drug:

- Not suitable to treat unforeseen illness and accidentstreat with tone dosing
- Difficulty in standardization.

Application Of Herbal Drug:

1. Traditional use of herbs:

- a) Common plants or their parts are used by all people as juices, decoctions, or tablets, frequently with varying indications.
- b) Safe and generally thought to cause no negative reactions.
- c) Thoughts, beliefs and traditions (holism) form the basis of the pathogenesis and treatment of disease and often include the patient's behavior and thoughts.

2. Scientific use of herbs:

- a) Utilizing appropriate plant preparation methods for pharmaceuticals and extractives.
- b) It is generally used as a symptomatic drug for treatment or prevention purposes, in purified and standardized form where the drug is pharmacologically active.
- c) Drug interactions, possible side effects and contraindications.
- d) Usually employed as a symptomatic, preventative, or therapeutic agent after being refined and standardized in the chemical ingredients with pharmacological activity.
- e) Potential adverse reactions, limitations, medication combinations, etc.

The diagnostic and therapeutic approach conforms to the standards of mainstream medicine since the only pharmacological activity that is based on routine laboratory procedures and clinical trials is used as the reference for clinical administration.

Future Prospects:

With the current healthcare industry valued at billions of dollars, herbal medicine plays a relatively little role. This study examines the application and promise of herbal medicines, as well as the issues and challenges that companies that produce herbal pharmaceuticals are currently encountering. Now that things have changed, people are starting to use herbal remedies more frequently because of their excellent efficacy, safety, and synergistic effects. Because it affects the drug's quality and effectiveness, formulation stability in herbal medications is an important issue.

New techniques to reduce chemical instability include suspensions, emulsions, modified proteins, biodegradable cellulose, and nanoparticles. Another major issue with pharmaceutical stability is preventing drug

deterioration from environmental influences. To guarantee medication stability, the right specifications including those related to packing and containers must be adhered to. Pharmacokinetic and ADME studies are important to ensure the effectiveness, toxicity, and safety of herbal medicines, as side effects and toxicities of these treatments, such as kidney damage, stone formation, neuropathy, and death in children, have been reported. The most crucial phase in the creation of herbal medications involves ethics, clinical studies, and validation of toxicity, safety, and efficacy levels.[31] The absence of rules has left farmers, manufacturers, and herbal producers ignorant of proper storage techniques and acceptable agriculture and collection procedures (GACP). It's important to remember that the only herbal pharmaceutical companies that can thrive and make a name for themselves on the global market are those who adhere to international regulations and GACP standards. Because of the limitations and defects in business legislation, standardisation, and quality production, Marketing, commercialization, and regulatory requirements of herbal pharmaceuticals are the most difficult and demanding activities in the current drug era.

Adverse Drug Reaction of Herbal Drug:

Negative reactions may be incomplete. Adverse drug reactions associated with herbs include the following serious side effects:

Table No.2: Adverse Drug Reaction

Sr. No.	Name of herbal drug	Adverse reaction
1.	Gingo Biloba	Allergic Skin Reaction, Bleeding Disorder, Constipation, Diarrhea
2.	Hypericum Perforaeum	Symptoms of Hypericum perforatum include fatigue, dizziness, confusion, allergic reactions, and gastrointestinal disturbances.
3.	Ephedra	Palpitation, Excitation, Insomnia, Dysuria.
4.	Piper Methysticum	Dened Eyes, Dry Skin, Yellowing Hair Skin Nail.
5.	Cassia Senna	Liver, Kidney Damage, Carcinoma.
6.	Aloe-Vera	Acute Kidney Failure, Cancer, Abdominal Cramps, Diarrhea.
7.	Commifoera Mukul	Stomach Upset, Loose Stool, Belching, Hiccups.
8.	Curcuma Longa	Acid Reflux, Increases Urinary Oxalate, Risk of Kidney Stone.
9.	Panax Ginseng	Trouble Sleeping, Liver Damage, Allergic Severe Reactions.

CONCLUSION:

Herbs used medicinally have become an important part of healthcare systems worldwide, helping people not only while they are ill but also as a possible resource for staying well. Globally, the herbal medicine industry has significant growth potential. Issues related to good registration should be appropriately addressed in international practice in the future, especially when considering the well-known trademark. Compiling safety and efficacy data and standardizing procedures are necessary to comprehend the usage of herbal medications. In underdeveloped nations, a significant obstacle to the growth of the medicinal plant businesses has been the dearth of knowledge on the potential social and financial advantages. [33-35]

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