

A REVIEW OF CURRENT TRENDS IN HERBAL DRUGS

Mustakeem Pinjari^{*1}, S.A. Waghmare^{*2}, Dr. Hemant Kamble^{*3}

^{*1}Department Of Pharmaceutics, Loknete Shri Dadapatil Pharate Collage Of Pharmacy
Mandavgan Pharate Tal – Shirur District – Pune, Maharashtra, India.

^{*2}Professor, Loknete Shri Dadapatil Pharate College Of Pharmacy, Mandavgan Pharate,
Tal- Shirur, Pune, Maharashtra, India.

^{*3}Principle, Loknete Shri Dadapatil Pharate College Of Pharmacy, Mandavgan
Pharate, Tal - Shirur, Pune, Maharashtra, India.

DOI : <https://www.doi.org/10.56726/IRJMETS32944>

ABSTRACT

The trend toward alternative treatment includes herbal medications significantly. As more individuals look for natural solutions, herbal therapy is becoming more and more well-liked in today's society. Since the dawn of civilization, herbal remedies have been used to promote wellness and treat a variety of illnesses. It is crucial to employ and scientifically validate more medicinally beneficial herbal items in order to compete with the expanding pharmaceutical market. This article gives a broad overview of herbal medications and aims to explain the therapeutic efficacy of various herbal medications, adverse drug reactions, drug interactions, standardisation and stability testing of herbal medications, pharmacovigilance, and the regulatory status of herbal medications.

Keywords: Herbal Drug, Stability Testing, Standardization, Efficiency.

I. INTRODUCTION

The use of whole plants or parts of plants to treat wounds or ailments is known as herbal medicine, sometimes known as plants materials or herbalism. 1\s. The use of medicinal herbs as medications is known as using them as herbal remedies2 or to promote health and healing. These are substances used for any of these uses that are medications or preparations produced from a plant or plants. The earliest type of medical treatment that mankind is aware of is herbal medicine3. There are numerous herbal remedies on the market that claim to treat the signs and symptoms of a wide range of conditions, from depression to the common cold and flu. According to the World Health Organization4 (WHO), herbal pharmaceuticals are defined as full, labelled medicines that contain potent chemicals, aerial or secretive plant parts, or other plant material. The World Health Organization has established exact rules for assessing the quality, safety, and efficacy of herbal medicines. According to WHO estimates, 80% of people worldwide currently utilise herbal medicines for their primary healthcare.

Exceptionally, herbal medications may contain by custom natural organic or inorganic active ingredients that are derived from sources other than plants. Traditional medicine's main component is herbal medicine, which is also frequently included in ayurveda, homoeopathic, naturopathic, and other medical systems5. Herbs are typically regarded as harmless because they come from natural sources. 6\s. The usage of herbal medications due to the toxicity and side effects of allopathic medications has caused a sharp rise in the number of herbal medication makers. Herbal medicines have been widely used for a number of decades. less negative effects Fully accessible and recyclable.

Herbal drugs' drawbacks include their inability to treat sudden illness and accidents, the risk of self-dosing, and the difficulty of standardizations.

Herbal drug use and preparation

Many illnesses can be effectively and safely treated when herbal medications are used in the right way. The patient often has a subjective opinion regarding the efficacy of herbal medications8. The genetic make-up, the growing environment, the timing and technique of harvesting, the exposure of the herbs to air, light, and moisture, and the form of preservation of the herbs all affect how potent the herbal medicines are. Some of the plants used to manufacture herbal medicines are grown and processed domestically, while others are imported from other countries. Herbal medication raw materials can come from wild plants or ones that have been properly cultivated9. Herbal medicines can be found in many different forms and frequently need to be

prepared before use. Typically, you may buy them in bulk as dried plants, plant parts, or loosely packaged for herbal drinks and concoctions. Herbs are cooked in water to make decoctions, which are then strained to remove the plant matter. Hydro alcoholic tinctures and fluid extracts are accessible as more potent herbal medicine formulations. Because of the nature of the active chemical components in plants, different preparation techniques may be used.

Pharmaceutical Effects of Herbal Medicines

inflammatory-reduction capacity

There is anti-inflammatory activity in the extracts of *Achillea millefolium*, *Artemisia vulgaris*, *Bauhinia tarapotensis*, *Curcuma longa*, *Forsythia suspense*, *Houttuynia cordata*, *Glycyrrhiza uralensis*, *Lonicera japonica*, *Ruta graveolens*, *Securidaca longipedunculata*, and *Valeriana wallichii*.

Diabetic prevention

People have used herbal plants as home treatments for diabetes since the dawn of time¹¹. *Abroma augusta*, *Acacia melanoxylon*, *Acacia modesta*, *Acacia nilotica*, *Aconitum ferox*, *Adhatoda vasika*, *Adiantum capillus*, *Adiantum incisum*, *Agrimonia eupatoria*, and others are among the herbal plants with anti-diabetic properties. *Arctium lappa*, *Commiphora abyssinica*, *Embilica officinalis*, *Eucalyptus globules*, *Allium sativum*, *Aloe barbadensis*, *Althaea officinalis*, *Apium graveolens*, *Ginkgo biloba*, *Gymnema \ssylvestre*, *Plantago ovata*, *Punica granatum*, *Salvia officinalis*, *Scoparia dulcis*, *Orthosiphon stamineus*, *Medicago sativa*, *Nigella sativa*, *Panex quinquefolius*, *Polygala senega*, *Inula helenium*, *Juniperus communis*.

Painkiller action

The *Bougainvillea spectabilis* extracts, A number of plants are used as analgesics, including *Chelidonium majus*, *Ficus glomerata*, *Dalbergia lanceolaria*, *Glaucium grandiflorum*, *Glaucium paucilobum*, *Nepeta italic*, *Polyalthia longifolia*, *Sida acuta*, *Stylosanthes fruticosa*, *Toona ciliate*, *Zataria multiflora*, and *Zingiber*

anti-cancer properties

The creation of medications to treat various human cancers is still the focus of intensive research on medicinal plant items with anticancer potential. *Acalypha fruticosa*, *Alangium lamarki*, *Catharanthus roseus*, *Celastrus paniculatus*, *Embelia ribes*, *Ficus glomerata*, *Ficus racemosa*, *Ocimum basilicum*, *Plumbago zeylanica*, *Terminalia chebula*, *Tylophora indica*, and *Wrightia tinctoria* are among the medicinal plants used to treat cancer. *Buthus martensi*, *Colla cornu*, and other plant extracts are utilised in the treatment of breast cancer. *Radix angelicae*, *Radix bupleuri*, *Herba epimedii*, *Fructus lycii*, *Rhizoma corydalis*, and *Rhizoma*.

antifertility effects

Plant-based medications' antifertility effects have increased the concentration of Due to their mild to nonexistent adverse effects, many experts consider them to be the principal source of naturally occurring fertility regulating chemicals. *Amaranthus retroflexus*, *Artabotrys odoratissimus*, *Barberis vulgaris*, *Carica papaya*, *Dieffenbachia seguine*, *Evodia rutacapra*, *Fatsia horrid*, *Ferula assafoetida*, *Hibiscus rosasinensis*, *Lonicera ciliosa*, *Magnolia virginiana*, *Mardenia cundurango*, *Pisum sativum*.

Activity against psoriasis

Psoriasis symptoms can be managed using a number of natural, proprietary formulae and therapies made with plant-based ingredients. The various herbal treatments for psoriasis include oregano oil, shark cartilage extract, turmeric, curcumin, and milk thistle. Various antimicrobial agents *Azadirachta indica*, *Calendula officinalis*, *Cassia tora*, *Wrightia tinctoria* have been used in the management of psoriasis.

Medications for dental illnesses

The plants with dental-care-related qualities include *Althea officinalis*, *Acacia catechu*, and *Acacia arabica*. *Azadirachta indica*, *Anacyclus pyrethrum*, *Barleria \sprionitis*, *Cuminum cyminum*, *Cinnamomum camphora*, *globules of eucalyptus*, *gardenia gummifera*, *antidysentery Holarrhenia*, *Ochrocarpus longifolius*, *Myrica sapida*, *Mimusops elengi*, *Jasminum grandiflorum*, *Juglans regia*, *Myrica sapida*, *Myroxylon balsam*, *Origanum vulgare*, *Ocimum sanctum*, *Piper nigrum*, *Piper longum*, and *Salvadora persica*, *Punica granatum*, *Pistacia lentiscus*, *Pterocarpus marsupium*, *Salvia officinalis* *Zanthoxylum alatum*, *Thalictrum foliolosum*, *Syzygium aromaticum*, *Symplocos racemosa*, *Solanum xanthocarpum*, and *Symplocos racemosa*. Each of these regimens is crucial for controlling dental issues.

Drug Adverse Reactions

Adverse pharmacological responses can still occur with herbal medications. Among the unfavourable pharmacological effects of commonly used herbs include Gingo biloba's impulsive bleeding, gastrointestinal problems, allergic reactions, weariness, dizziness, photosensitivity, and confusion. Hypericum perforatum, hypertension, cardiac arrhythmias, myocardial infarction, ephedrine-induced anxiety, paprika-induced headache, chaste-tree fruit-induced diarrhoea, and piper methysticum-induced liver damage.

Herbal Drug Interactions

Patients who are enamoured of medications having a limited therapeutic index, such as cyclosporine, digoxin, phenytoin, procainamide, theophylline, and warfarin, should be discouraged from utilising herbal remedies. When used with herbal medications, all medications with narrow therapeutic indices may either have more bad effects or less efficacy. Ginkgo is used to treat Alzheimer's disease, however taking aspirin increases bleeding. The uses of ginseng are numerous. Around the world, the price of healthcare is rising alarmingly quickly. The global market for phytopharmaceuticals is also steadily expanding. According to the World Bank, the trade in raw materials, botanical drug products, and medicinal plants is expanding at an annual rate of between 5 and 15%^{36, 37}. People with chronic, incurable diseases including diabetes, arthritis, and AIDS frequently report turning to herbal remedies to feel in control of their conditions and to feel more comfortable acting on their behalf.

Many harmful and fatal side effects, including as direct toxic effects, allergic reactions, impacts from impurities, and combinations with medications and other herbs, have lately been recorded. Only four of the ten herbs most frequently used in the United States are likely to be helpful, according to systematic studies, and there is very little data to assess the efficacy of the almost 20000 other herbal medicines on the market³⁹. For reliable clinical studies and to consistently provide good therapeutic effects, standardised herbal medicines of consistent quality and having well-defined ingredients are needed. The phytochemical components found in a herbal composition determine its pharmacological characteristics. Development of reliable analytical techniques, such as quantitative studies of marker/bioactive chemicals and other significant elements, is a key objective.

A consistent pharmacological impact is not anticipated without constant quality in a phytochemical mixture. The resurgence of interest in herbal medicines and the expanding market for them require a strong commitment from all parties involved in order to protect both the customer and the sector. The first stage in creating a uniform biological activity, consistent chemical profile, or even just a quality assurance programme for production and manufacturing is standardisation. Therefore, the EU has defined three categories of herbal products:

- (1) those with known and experienced therapeutic activity (single compounds or families of compounds).
 - (2) those with chemically defined constituents possessing relevant pharmacological properties.
 - (3) those in which no constituents have been identified as having known or experienced therapeutic activity.
- Those in which the therapeutic activity has not been attributed to any ingredients.

According to the definition of standardisation given in the text for advice on the quality of herbal medicinal goods, it entails modifying the herbal medication preparation to contain a specific amount of a constituent or a set of constituents with established therapeutic activity. The European Medicines Agency (EMA) distinguishes between marker compounds that allow standardisation on a specific amount of the chosen component and constituents with established therapeutic activity that can be used to standardise a biological effect. Marker compounds are described by the EMA as chemically specified components of a herbal medication that are important for control purposes regardless of whether they have any therapeutic effect. Examples of markers are the valerenic acids in *Valeriana officinalis* L., ginkgolides and flavonoids in *Ginkgo biloba* L. and hypericin and hyperforin in *Hypericum perforatum*.

Testing for Herbal Drug Stability

It can be difficult to assess the stability of natural medicines. danger, regardless of whether ingredients with specific therapeutic activity are recognised, because the entire herb or herbal preparation is considered the active matter⁴². The goal of a stability test is to establish recommended storage conditions and a shelf-life by demonstrating how the quality of herbal products changes over time under the influence of environmental

factors like temperature, light, oxygen, moisture, other ingredients or excipients in the dosage form, drug particle size, microbial contamination, and trace metal contamination. To make sure the product maintains a satisfactory level of quality throughout the entire storage period, stability testing is required.

At least three production batches of the herbal products should be the subject of stability studies for the planned shelf-life, which is typically referred to as long-term stability and is carried out in an environment with natural atmospheric conditions.

Accelerated ambient conditions of temperature, humidity, and light are known as short-term stability, and the information gathered from these is utilised to forecast the product's shelf life. The dosage form packaged in the container closure system suggested for marketing should undergo stability testing. It is feasible to produce a high-quality sample with the use of contemporary analytical techniques like spectrophotometry, HPLC, and HPTLC and by following the right procedures. a sound stability data of herbal products and predict their shelf-life, which will help in improving global acceptability of herbal product.

Pharmaceutical Monitoring of Herbal Drugs

The science and practise of pharmacovigilance pertaining to the identification, evaluation, comprehension, and prevention of drug side effects or any other potential drug-related issues. Its concerns have recently been expanded to cover vaccines, blood products, biologicals, traditional and alternative treatments, and herbals⁴⁴. Pharmacovigilance's objectives include preventing patients from needless suffering by detecting previously unknown pharmacological side effects, explaining predisposing variables, and evaluating risk in comparison to benefits⁴⁵. Pharmacovigilance's goal is to identify, evaluate, and comprehend any potential negative effects or other drug-related issues associated to herbal, conventional, and complementary medicines⁴⁶. Although herbal medications are widely used in both developed and developing nations, there have been several high-profile herbal safety problems affecting the general public's health. Herbal medicines are typically seen to be safe, but as medicines, they need to be observed while being taken in order to discover any hazards.

Published evidence indicates that the risk is brought on by either a contaminant or an additional medicine. Due to the lack of strict quality control, the diverse character of herbal pharmaceuticals, and the extremely limited understanding about the components of herbal drugs and their effects on humans, it is necessary to continuously monitor the safety of these products. The WHO International Drug Monitoring Programme is the backdrop for expanded WHO efforts to promote herbal safety monitoring. The WHO recommendations seek to offer its members a framework for the easier regulation of herbal remedies used in Classification, evaluation of safety and efficacy, quality control, pharmacovigilance, and regulation of the advertising of herbal medication items are all topics covered by traditional medicine. Because herbal medicines can be purchased from a variety of locations, often without the assistance of a medical practitioner, the pharmacovigilance of these products presents unique issues. The majority of transactions are made in a traditional OTC setting. Pharmacovigilance is conducted using a variety of techniques, including targeted clinical investigations to look into drug-drug interactions and food-drug interactions⁴⁷, active surveillance by sentinel sites, drug event monitoring, registries, comparative observational studies, survey studies, and case control studies. It is generally known that genetic variables play a significant role in determining an individual's susceptibility to unfavourable drug reactions, and this also holds true for herbal remedies.

Drug Regulation for Herbal Products

The legal status of herbal medications differs depending on from nation to nation. Herbs are well known in folklore in developing nations, and their usage in traditional medicine is widespread. However, many nations lack any legal standards for including these conventionally used herbal medications in drug legislation.

In most nations, the approval of herbal medications is based on references to traditional plants, provided that using them to treat minor illnesses is not recognised to be dangerous. However, there are currently claims being made that more severe illnesses can be treated with herbal medicines without the use of traditional knowledge⁵⁰. Therefore, to assure the safety, strict regulations for herbal pharmaceuticals are required.

II. CONCLUSION

The use of medicinal herbs as potential sources of therapeutic help has grown significantly in the global health care system for people, not only in cases of disease but also as potential resources for preserving good

health52. It is obvious that the herbal sector has a lot of potential. Given the growing popularity of herbal products, quality issues should be appropriately covered in future global labelling practises. To comprehend the use of herbal medications, standardisation of procedures and quality control data on safety and efficacy are necessary. Lack of knowledge about the potential social and economic benefits of the industrial use of medicinal plants has been a major barrier to the development of the enterprises based on these plants in underdeveloped nations. Further research is required to exploit the compounds responsible for the observed biological activity.

III. REFERENCES

- [1] Winslow, L; Kroll, DJ (1998), "Herbs as Medicines, Archives of Internal Medicine",158, 2192-2199.
- [2] Gossell, M; Simon, OR; West, ME (2006), "The past and the present use of plants for medicines", West Indian Medical Journal,55,217.
- [3] De-Smet, PGAM (1997), "The role of plant derived drugs and herbal medicines in healthcare drugs, 54, 801-840.
- [4] WHO technical report series (1996), "Guidelines for the Assessment of Herbal Medicines", 863, 178-184.
- [5] Abhishek, K; Ashutosh, M and Sinha, BN (2006), "Herbal drugs- present status and efforts to promote and regulate cultivation", The Pharma Review, 6, 73-77.
- [6] Harish, P (2001), "Herbal drugs", Current Science, 81(1), 15.
- [7] Coleman, LM and Fowler, LL and Williams ME (1995), "Use of unproven therapies by people with alzheimer"s disease", Journal of the American Geriatrics Society, 43,747-750.
- [8] Sutherland, LR and Verhoef, MJ (1994), "Why do patients seek a second opinion or alternative medicine", Clinical Gastroenterology", 19,194-197.
- [9] Catherine, C; Crone, MD; Thomas, N and Wise, MD (1998), "Use of herbal medicines among consultation-liaison populations", The Academy of Psychosomatic Medicine", 39(1), 3-13.
- [10] The Indian Pharmacopoeia (1996), Govt. of India, Ministry of Health and Family Welfare, The Controller of Publication, A53, 54, 89.
- [11] Mukherjee, PK; Maiti, K; Mukherjee, K and Houghton, PJ (2006), "Leads from Indian medicinal plants with hypoglycemic potentials", Journal of Ethnopharmacology, 106, 1-28.
- [12] Jia, W; Gao, Wa and Tang, L (2003), "Antidiabetic Herbal Drugs Officially Approved in China", Phytother. Res., 17,1127-1134.
- [13] An SM; Chen, W and Feng, XL (1998), "The treatment of 30 type II diabetic patients with Yu-san-xiao", J Pract Trad Chin Med, 14, 44-45.
- [14] Al-Awadi, FM and Gumaa, KA (1987),"Studies on the activity of individual plants of an antidiabetic plant mixture", Acta Diabetologica Latina", 24, 37-41.Bodhisattwa Maiti et al./International Journal of Drug Research and Technology 2011,Vol.1 (1), 17-25 <http://www.ijdr.com/> 24
- [15] Shang, MF (2000), "Status of the development of antidiabetic TCM in China", Chin J TCM Inform, 7, 78-81.
- [16] Sehgal, A (2003), "Herbal medicinesharmless or harmful", Anesthesia; 57,947-948.
- [17] Feng, Y; Wang, N; Zhu, M; Feng, Y; Li H and Tsao, S (2011), "Recent Progress on Anticancer Candidates in Patents of Herbal Medicinal Products; Recent Patents on Food", Nutrition & Agriculture, 3 30-48.
- [18] Rodeiro, I; Magarino, Y; Ocejó, O; Garrido, G and Delgado, R (2008), "Use of natural products in anti-cancer alternative therapy: risk of interactions with conventional anticancer drugs; Boletín Latinoamericano y delCaribe de Plantas Medicinales y Aromáticas, 7 (6), 332-344.
- [19] Lalla, JK (2005), "Herbal medicines revisited", The Pharma Review, 12, 101-105.
- [20] Khan, I; Alam, S; Akhter, S; Shahin, N and Ansari, FZ (2007), "Ageing and its herbal treatment", The Pharma Review.