

Date of Acceptance: 08th Apr, 2024Date of Publication: 16th Apr, 2024**CONTEMPORARY TRENDS IN PHARMACEUTICALS, HERBAL REMEDIES, AND PROSPECTS AHEAD****Mangesh Chandrakant Pathak, Manisha Siddharam Mhamane, Pratiksha Dhamma Magade, S.B. Nagansurkar, S. K. Bais****Fabtech College of Pharmacy, Sangola. Maharashtra****Corresponding author Mail ID: mangeshpathak433@gmail.com****ABSTRACT:**

Nature is always the best example of the remarkable phenomenon of symbiosis. People in the developed nations are growing more interested in natural product cures with a fundamental understanding of nature as they become more aware of the potency and adverse effects of synthetic pharmaceuticals. Ayurveda, Yoga, Unani, Siddha, Homeopathy, and Naturopathy all legally recognized health systems in India save Allopathy all heavily rely on herbal remedies. The non-allopathic medical systems continue to be utilized by over 70% of India's 1.1 billion people. The adverse effects of allopathic medications have led to a global surge in demand for Ayurvedic pharmaceutical goods. Not only are herbal medications becoming more and more popular in developing nations for primary healthcare needs, but they are also more culturally acceptable, better suited to human bodies, and have less adverse effects. But new research suggests that not all herbal medications are safe, with some herbal medications reportedly having serious side effects. The majority of herbal products available today have not undergone testing to verify their safety and efficacy through the medication approval procedure.

KEYWORDS: *Scenario of Pharmaceutics, Current Scenarios of herb, Future prospects Investigative research.*

INTRODUCTION

For their basic medical needs, about 80% of people in developing countries still rely on traditional medicine, which primarily uses animal and plants species. The use of organic remedies is becoming more and more common these days. Approximately 500 plants are known to have medicinal properties in ancient literature, and 800 species are employed in traditional medical systems. [1] About 121 pharmaceutical products have been developed in the last century using traditional knowledge that has been compiled from a variety of sources. Plants are important sources of medicine, with at least one plant-based ingredient found in about 25% of US prescriptions are for this medication. Although over 500 traditional communities in India use about 800 plant species to treat various diseases, only about 20,000 medicinal plant species have been identified as of late. Innovations in science, shifting consumer tastes, and shifting regulatory landscapes are causing profound changes in the pharmaceutical and herbal medicine sectors. An overview of the state of pharmaceutical and herbal medicine is given in this review article, along with a focus on significant trends and potential future developments pharmaceutical companies continue to dominate the healthcare industry today because they provide standardized formulas and accurate dosage. However, because they are thought to have fewer negative effects and more natural benefits, herbal treatments are becoming more and more popular. Both of these trends

may converge in the future with more studies being done on the effectiveness of herbal medicines and their integration with contemporary medications. This might result in more possibilities for patient care and tailored medicine methodologies. Furthermore, technological developments like artificial intelligence and gene editing have the potential to completely transform medication research and development and open the door to more precise and effective treatments.

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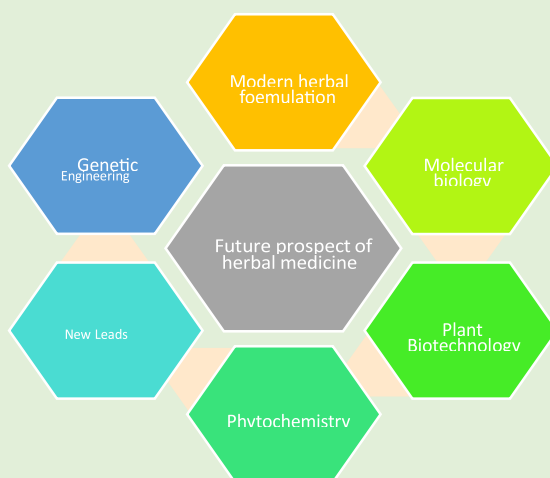


Fig. No.1: Future Prospect of Herbal Medicine

Current Scenario of Pharmaceuticals & Herbal Medicines:

1.Current Scenario of Pharmaceuticals:

Pharmaceutics is a field that is always changing because to advances in formulations, manufacturing processes, and drug delivery technologies. In an effort to maximize medication efficacy and reduce adverse effects, tailored drug delivery technologies like liposomes and nanoparticles have been developed recently. Personalized medicine, in which individual patients' therapies are customized based on their genetic composition and other criteria, is also gaining popularity. To guarantee product quality and consistency, Quality by Design (QbD) principles are also being incorporated into pharmaceutical development procedures more and more. All things considered, the field of pharmaceutics continues to be a vibrant and important hub for medical research and innovation.[4]Due to the quick and continuous changes occurring on a worldwide scale, particularly in the areas of the regulatory framework in the Indian pharmaceutical business is extremely important.[5] As the pharmaceutical industry in India grows daily and becomes more competitive, regulatory bodies are also set up to ensure the accuracy, safety, and effectiveness of pharmaceuticals and suitability of general public medication information.Regulatory organizations facilitate the creation and provision of secure and efficient medical supplies to citizens across the country by offering guidance and support in strategic, tactical, and operational domains.[6] In terms of pharmaceutical rules pertaining to registration of drug

products, International regulatory agencies play a critical role in manufacturing, distribution, pricing control, marketing, research and development, and intellectual protection. Among the many international organizations are the World Health Organization (WHO), the Pan American Health Organization (PAHO), the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use (ICH), and the World Intellectual Property Organization (WIPO). [7] To guarantee the nation's pharmaceuticals, cosmetics, diagnostics, and devices are safe, effective, and of high quality, the CDSCO establishes guidelines and protocols. In the nation, CDSCO plays a significant role in controlling clinical trial procedures and the market authorization of novel medications, commonly known as investigational new drugs (INDs). The primary regulatory authority in India is in charge of overseeing the significance, distribution, and production of medical equipment that formerly been classified since pharmaceuticals utilizing section. The D&C Act 14's 3(b) (IV) sets criteria for pharmaceuticals, cosmetics, licenses to the producers and importers of drugs, as well as diagnostics and devices. [8]

2.Current Scenario of Pharmaceutics in India:

According to the union budget, India offers nearly half a billion residents the largest healthcare program in the world. The new "Namocare" program covers around 40% of Indian citizens' health insurance. However, the government has pledged to make significant reforms to the DPCO sector and is likely to release a new pharmaceutical strategy to successfully execute PHARMA2020 and "Namocare" nationwide. The pharmaceutical industry's several components, including DPCO, production, Research and development, funding, pharmaceutical supervision, quality assurance, price monitoring, and medical equipment will be unified and strengthened by the new policy. Nonetheless, The cause of giving patients priority is something that Indian pharmacists are committed to and they shall maintain pushing in light of stronger laws governing the country's pharmaceutical sector.[9]

Over 50% of the global market for various immunizations, 40% of the US market for generics, and 25% of the UK market for all medications are supplied by the Indian pharmaceutical industry. [10-11] The Indian Economic Survey 2021 predicts that within the next ten years, the home market will rise three times. The Indian market for pharmaceuticals is expected to reach US\$ 65 billion by 2024 and US\$ 120–130 billion by 2030, from its estimated US\$ 42 billion in 2021. In January 2022, the pharmaceutical market in India experienced a 13.9% increase in overall sales in 2021, almost 60% of all vaccines produced worldwide came from India, making it the world's largest manufacturer of vaccinations.[12]

Current Scenario of Herbal Medicines:

About 75–80% of the global population continues to rely mostly on herbal remedies for primary healthcare, particularly in developing nations. According to data from the World Health Organization the use of herbal remedies is two to three times higher worldwide than the use of pharmaceuticals. Throughout medical history, there are numerous tales from thousands of years ago about people treating sick members of their community with herbs. On the other hand, we saw the emergence of allopathic medicine concurrent with the start of the industrial revolution. Although it was also a successful therapeutic approach, herbal medicine was not as well accepted. Humanity has always recognized its dependence on nature for survival and wellbeing.

Throughout recorded history, people have utilized a diverse range of plant-based resources for shelter, clothing, food, and medical treatment of a variety of ailments. Utilizing non-organic minerals, plants, and animal products normally ingested in their diets to treat illnesses, early people were guided by instinct, taste, and acquired knowledge.[13]

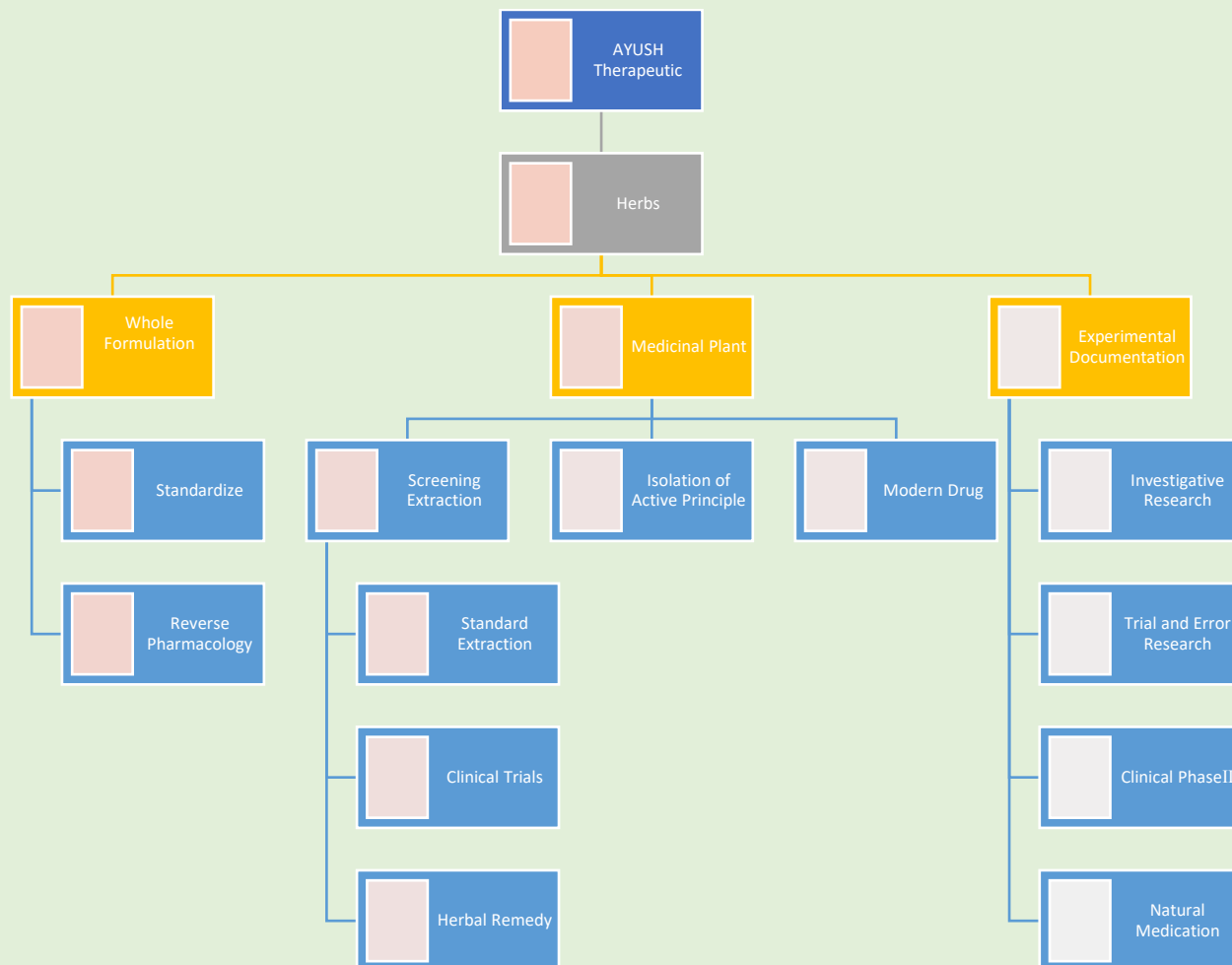


Fig. No.2: Research Approach to Herbal Products

Difference of Herbal and Conventional Drugs:

There are three key distinctions between conventional pharmacology and herbal treatment, despite their apparent similarities:

Utilizing Entire Plants: Unpurified herbal extracts with a variety of components are typically used by herbalists. It is said that they can combine in a way that makes the whole plant more potent than the sum of the potencies of its parts. Using whole herbs rather than single active compounds is said to minimize toxicity as well (a process known as "buffering").

Mixing Herbs: Several distinct herbs are frequently combined. Practitioners assert that plant combinations can benefit from the synergy and buffering principles. Combining herbs increases their potency and decreases their side effects. This is in contrast to standard practice, which normally advises against polypharmacy wherever feasible.

Diagnosis-Herbalists and conventional practitioners employ distinct diagnosing methods. For instance, in the course of managing arthritis, physicians would note the "under-functioning of a patient's symptoms of elimination" and determine that "an accumulation of metabolic waste products" is the cause of the condition. [14]

Current State of Herbal Remedies:

Herbal medicine is widely used worldwide and is not limited to developing nations; within Germany and France, 70% of doctors systematically prescribe herbal remedy. Additionally, the number of people seeking

treatment with herbal remedies is skyrocketing. According to the figures that are currently accessible, the herbal medicine market in the European Union in 1991 was estimated to be worth \$6 billion (it may currently be worth over \$20 billion) Of this total, \$3 billion came from Germany, \$0.6 billion from Italy, and \$1.6 billion from France. The market for herbal medicines in the United States was valued at \$4 billion in 1996, and since then, increased. About \$1 billion is spent on herbal drugs in India, while about \$80 million is exported in the form of raw herbal extract. [15]

Table No.1: Drug sales in various countries

Sr. No.	Country	Drug sales in US \$ (billion)
1	USA	4.0\$
2	India (1996)	1.0\$
3	Italy	0.6\$
4	Germany	3.0\$

There has been an interesting development in plant medicine during the past few decades. Rather of being eradicated by advances in pharmaceutical chemistry and medical research, it has returned. While frivolous and sentimental assertions that organic remedies & effective Utilizing plants as medicine has been acknowledged. Herbal therapy has profited from the objective analysis of medical research. It has also been discovered that herbal medicine possesses some outstanding qualifications. Despite being empirically developed through trial and error, many herbal remedies were very successful.

It is projected that the Ayurvedic medication market will grow by 20% a year. India has grown at the fastest rate ever recorded worldwide in the last 10 years (1987–1996), with selling of therapeutic plants rising through almost 25 percent. However, India has some of the lowest annual precipitant expenditures worldwide on pharmaceuticals. Among plants are the primary origin of medication in other poor nations as well. India only has a \$1 share of the global herbal market, compared to China's \$6 billion.[16]

India's Herbal Medicine Scenario:

The market for herbal medications is expanding gradually and the use of these medications is increasing. Compared to the pharmaceutical sector, which has a revenue of Rs. 14,500 crores with a 15% growth rate, the yearly revenue of the Indian herbal medicine market is roughly Rs. 2,300 crores. India has exported a considerable quantity of medicinal herbs and plants in recent years. With around 1,25,000 tons produced a year, there is a \$1 billion natural medication market in India. A few therapeutic plants with significant market potential have been listed and compiled.[17]

It's believed that exist over twenty-five thousand licensed pharmacists practicing Indian health care in India. Approximately 3000 compound formulations and approximately 1000 single medicines are now registered. India employs over 8000 medicinal plants in its herbal business.

India boasts more than 45,000 plant species, making it one of the 12 mega biodiversity hubs. Approximately 1500 plants have been identified in ancient writings as having therapeutic properties, and about 800 certain species have been used in conventional medicine. But India's efforts as well produce pharmaceuticals derived from plants have not been successful in the global market, and the country's lead over other nations in the

herbal domain. Despite having a wealth of traditional knowledge and a long history of using herbal therapy, India exports very little herbal medication (Kamboi, 2000). The situation, which frequently thwarts a significant national development project for herbal products, is as follows: (i) Neither the aim to be attained nor the deadline for achieving the target, if any, are clearly defined. (ii) The national laboratories looking into medicinal plants are not coordinating with one another. (iii) The absence of a meaningful conversation between an industry-funded institution and the public sector is striking.[18]

CONCLUSION:

While herbal medicine may see further integration with conventional healthcare, along with strict regulation and evidence-based procedures, the future of pharmaceuticals lies in precision medicine, AI-driven drug development, and biotechnology. Both areas have bright futures in addressing a range of healthcare requirements, and there may be opportunities for collaboration in integrated approaches to wellbeing. In recent times, even affluent nations have incorporated herbal medications and cures into their medical systems. Without a doubt, there is a growing global market for products made from plants. The growing popularity of herbal remedies and supplements is expected to drive up demand in the years to come. This indicates that since China, India, and other countries are the top exporters of medicinal plants and have the highest number of species of medicinal plants, scientists, physicians, and pharmaceutical corporations will be going to these nations for their needs. More accountability, transparency, and collaboration amongst the various ministries in charge of regulating drugs are required. Those involved in the industry have insisted that nothing is "abnormal," and Indian businesses have always prioritized quality, for apparent reasons. These developments have a multifaceted effect on a company's operations, encompassing remedial costs as well. Since the "HERBAL AGE IS ABOUT TO COME," I have attempted to highlight the importance and potential applications of herbal medicines while keeping the facts in mind. This will hopefully inspire researchers to look into the possibility of discovering new chemical entities derived from herbs.

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