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## Overview of Traditional Herbal Remedies For Primary Health Care

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### ABSTRACT

Herbal medicines constitute the main component of traditional medicine, which have been used since thousands of years. At present, the use of medicinal plants for health benefits is increasing worldwide. Although therapies involving these agents have shown promising potential with the efficacy of a good number of herbal products clearly established, many of them remain untested and their use are either poorly monitored or not even monitored at all. Since safety continues to be a major issue with the use of herbal remedies, it becomes imperative, therefore, that relevant regulatory authorities put in place appropriate measures to protect public health by ensuring that all herbal medicines are safe and of suitable quality. Natural products and traditional medicines are of great importance. When used to develop new drugs, natural products and traditional medicines have their incomparable advantages, such as abundant clinical experiences, and their unique diversity of chemical structures and biological activities. This study aims to review the literature on the relationship among natural products, traditional medicines, formulation studies, and also highlights some important challenges associated with effective monitoring of their safety.

**Keywords:** Natural products, Traditional medicine, Formulation, Monitoring safety, Public health.

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## INTRODUCTION

Herbal medicines constitute the main component of traditional medicine, which have been used since thousands of years. They have made significant contribution to human health through their health promotive, curative and rehabilitative properties and in the prevention of illnesses. Indeed, many herbal remedies used traditionally have become modern medicines through drug development. Digoxin, morphine, colchicine, and artemisinin are some notable examples. At present, the use of medicinal plants for health benefits is increasing worldwide.<sup>1,2</sup>

According to fossil records, the human use of plants as medicines may be traced back at least 60,000 years. The use of natural products as medicines must, of course, have presented a tremendous challenge to early humans. It is highly probable that when seeking food, early humans often consumed poisonous plants, which led to vomiting, diarrhea, coma, or other toxic reactions perhaps even death. However, in this way, early humans were able to develop knowledge about edible materials and natural medicines. Subsequently, humans invented fire, learned how to make alcohol, developed religions, and made technological breakthroughs, and they learned how to develop new drugs. Traditional medicines (TMs) make use of natural products and are of great importance. Such forms of medicine as traditional Chinese medicine (TCM), Ayurveda, Kampo, traditional Korean medicine (TKM), and Unani employ natural products and have been practiced all over the world for hundreds or even thousands of years, and they have blossomed into orderly-regulated systems of medicine. In their various forms, they may have certain defects, but they are still a valuable repository of human knowledge.

At the beginning of the nineteenth century, the era of “modern” drugs began. In 1805, the first pharmacologically active compound morphine was isolated by a young German pharmacist, Friedrich Sertürner, from the opium plant. Subsequently, countless active compounds have been separated from natural products. Among them, some follow their traditional uses and the others do not. Later, the development of synthetic techniques led to a significant reduction in the importance of natural products, and there were concerns that the use of some natural products for medicinal purposes might be completely banned. However, natural products are important for the development of new drugs, and these products have been in constant use. Some type of medicines, such as anticancer, antihypertensive, and antimigraine medication, have benefited greatly from natural products.

Some large pharmaceutical companies are facing great challenges to develop new products. Natural products, which have evolved over millions of years, have a unique chemical diversity, which results in diversity in their biological activities and drug-like properties. Those products

have become one of the most important resources for developing new lead compounds and scaffolds. Natural products will undergo continual use toward meeting the urgent need to develop effective drugs, and they will play a leading role in the discovery of drugs for treating human diseases, especially critical diseases.

### **NATURAL PRODUCTS** <sup>1,3</sup>

Natural products have a wide range of diversity of multi-dimensional chemical structures; in the meantime, the utility of natural products as biological function modifiers has also won considerable attention. Subsequently, they have been successfully employed in the discovery of new drugs and have exerted a far-reaching impact on chemobiology. As a successful example of drug development from natural products, artemisinin and its analogs are presently in wide use for the anti-malaria treatment. This shows how research using natural products has made a significant contribution in drug development.

Among anticancer drugs approved in the time frame of about 1940–2002, approximately 54% were derived natural products or drugs inspired from knowledge related to such. For instance, the Vinca alkaloids from *Catharanthus roseus*, and the terpene paclitaxel from *Taxus baccata*, are among successful anticancer drugs originally derived from plants.

Considering their mechanisms of action, natural products have continued to play a pivotal role in many drug development and research programs.

#### **Drugs developed from natural products**

In clinical trials, it was found that the increased levels of serum alanine aminotransferase and aspartate aminotransferase were dramatically decreased by bicyclol. It was also found that bicyclol prohibited hepatitis B virus replication in chronic hepatitis B patients. Compared with previous anti-hepatitis drugs, bicyclol exhibited a more consolidated effect after the drug was discontinued; the rebound rate was low, with fewer adverse reactions and higher oral bioavailability.

Based on synthesis, pharmacology, toxicology, pharmacokinetics, preparation, and quality control, researchers determined that the new antihepatitis drug bicyclol offered significant hepatoprotective effects, antihepatitis virus activity, and fewer adverse reaction. Bicyclol has been approved for the treatment of chronic viral hepatitis in China since 2004. Bicyclol has independent intellectual property rights and belongs to Class 1 of China's New Chemical Drug. The drug is one of the anti-inflammatory and hepatoprotective drugs recommended by the "Guidelines on Liver Disease Clinical Diagnosis and Treatment" in China, and it has been exported to many countries.

## TRADITIONAL MEDICINES<sup>4</sup>

TM is the oldest form of health care in the world and is used in the prevention, and treatment of physical and mental illnesses. Different societies historically developed various useful healing methods to combat a variety of health- and life-threatening diseases. TM is also variously known as complementary and alternative, or ethnic medicine, and it still plays a key role in many countries today.

Chinese herbal medicine, which is the most important component of TCM, is currently used in the health care of an estimated 1.5 billion people worldwide. Together with radiotherapy or chemotherapy, some Japanese physicians frequently utilize Kampo medicines in treating cancer patients. This indicates how modern Western medicine can be well integrated with TM. The current status of TM differs in different countries. In 2012, the total value of the TCM industry was equivalent to around one-third of the total for China's pharmaceutical industry. Many practitioners of Western medical science think such TM systems as being short of reliability; however, they are adopted by the majority of people in the world.

## INDIAN TRADITIONAL MEDICINE<sup>5,6</sup>

Ayurveda is a medicinal system primarily practiced in India that has been known for nearly 5000 years. It includes diet and herbal remedies, while emphasizing the body, mind and spirit & also disease prevention and treatment.

### Herbal plants

Herbal plants are the most important part of our life. Any plant organ such as root, stem, leaves, flowers and fruits are used in some medicinal, culinary or fragrant properties. A herb is a plant that is valued for qualities such as medicinal properties, flavour, scent or the extracts and like. Traditional medicine or folk medicine practices are based on the use of plants and plant extracts. Herbal plants may be annuals, biennials and perennials. Annual herbaceous plants life period is half-one year only, that is the plant die completely at the end of the growing season or when they have flowered & fruited. Biennial herbal plants life period is 1 to 2 years. Perennial herbal plants grows many years. The stems die at the end of the growing seasons, but parts of the plant survive under or close to the ground or root part from season to season. The new growth of plant develops from living tissues remaining on or roots. The age of some herbal plants can be determined by analyzing annual growth rings in the secondary root xylem.

Herbal drugs constitute a major share of all the officially recognized systems of health in India viz. Ayurveda, Yoga, Unani, Siddha, Homeopathy and Naturopathy, except Allopathy. More than 70% of India's 1.1 billion population still use these non-allopathic systems of medicine.

Currently, there is no separate category of herbal drugs or dietary supplements, as per the Indian Drugs Act. However, there is a vast experiential-evidence base for many of the natural drugs. This offers immense opportunities for observational therapeutics and reverse pharmacology. Evidence-based herbals are widely used in the diverse systems and manufactured, as per the pharmacopoeial guidelines, by a well-organized industry. Significant basic and clinical research has been carried out on the medicinal plants and their formulations, with the state-of-the-art methods in a number of Institutes/Universities. There are some good examples. Indian medicinal plants also provide a rich source for antioxidants that are known to prevent/delay different diseased states. The antioxidant protection is observed at different levels. The medicinal plants also contain other beneficial compounds like ingredients for functional foods. Hence, the global knowledge about Ayurveda and Indian herbals will hopefully be enhanced by information on the evidence-base of these plants. This will yield rich dividends in the coming years.

### **AN OVERVIEW OF TRADITIONAL SYSTEMS OF MEDICINE<sup>7</sup>**

According to World Health Organization, “Traditional medicine refers to health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being. Further the term ‘complementary’ and alternative medicine (and sometimes also non-conventional or parallel) are used to refer to a broad set of healthcare practices that are not part of country’s own tradition, or not integrated into the dominant healthcare system. Several classifications have been attempted for defining and classifying traditional medicine. It is pointed that there is no homogenous body of medical thought and practice which can be put under one name.

### **SAFETY, EFFICACY, QUALITY<sup>3,8</sup>**

Towards the end of 19th century traditional medicine production shifted from a home level production to cottage industry and subsequently to large industrial mass production. For instance, today in India there are over 9,000 registered pharmaceutical industries of various Indian systems of medicine. Though the percentage of large industries is less, quality control is a major challenge.

According to WHO, the quantity and quality of safety and efficacy data available on TCAM are far from sufficient to meet the criteria needed to support its use worldwide. This is due to variety of reasons such as lack of proper documentation, appropriate policies and even a suitable research methodology. A recent study reported heavy metal content in Ayurvedic herbal preparations sold in the American market and have recommended mandatory toxic heavy metal

testing for all herbal products. Researchers argue that such studies are important and needed, however are more related to the quality control failures of the mass manufacturing activities. Standardization of several aspects such as nomenclature of medicinal plants and other resources, their collection practices, semi processes and final processing, packaging, preservation, storage, product life, labeling and modes of distribution including clinical application are needed to ensure quality, safety and efficacy of TCAM.

### **PRIMARY HEALTH CARE** <sup>9,10</sup>

Primary health care, or PHC, refers to "essential health care" that is based on scientifically sound and socially acceptable methods and technology. This makes universal health care accessible to all individuals and families in a community. PHC initiatives allow for the full participation of community members in implementation and decision making. Services are provided at a cost that the community and the country can afford at every stage of their development in the spirit of self-reliance and self-determination. In other words, PHC is an approach to health beyond the traditional health care system that focuses on health equity-producing social policy. PHC includes all areas that play a role in health, such as access to health services, environment and lifestyle. Thus, primary healthcare and public health measures, taken together, may be considered as the cornerstones of universal health systems. The World Health Organization, or WHO, elaborates on the goals of PHC as defined by three major categories, "empowering people and communities, multisectoral policy and action; and primary care and essential public health functions as the core of integrated health services." Based on these definitions, PHC can not only help an individual after being diagnosed with a disease or disorder, but actively prevent such issues by understanding the individual as a whole.



**Figure: 1 A primary health care in Saudi Arabia**

This ideal model of healthcare was adopted in the declaration of the International Conference on Primary Health Care held in Alma Ata, Kazakhstan in 1978 (known as the "Alma Ata Declaration"), and became a core concept of the World Health Organization's goal of Health for all. The Alma-Ata Conference mobilized a "Primary Health Care movement" of professionals

and institutions, governments and civil society organizations, researchers and grassroots organizations that undertook to tackle the "politically, socially and economically unacceptable" health inequalities in all countries. There were many factors that inspired PHC; a prominent example is the Barefoot Doctors of China.

### **Goals and principles of primary health care <sup>11</sup>**

The ultimate goal of primary healthcare is the attainment of better health services for all. It is for this reason that the World Health Organization (WHO), has identified five key elements to achieving this goal.

1. Reducing exclusion and social disparities in health (universal coverage reforms);
2. Organizing health services around people's needs and expectations (service delivery reforms);
3. Integrating health into all sectors (public policy reforms);
4. Pursuing collaborative models of policy dialogue (leadership reforms); and
5. Increasing stakeholder participation.

### **HEALTH CARE IN INDIA <sup>11,12</sup>**

India has a universal multi-payer health care model that is paid for by a combination of public and private health insurance funds along with the element of almost entirely tax-funded public hospitals. The public hospital system is essentially free for all Indian residents except for small, often symbolic co-payments in some services. At the federal level, a national publicly funded health insurance program was launched in 2018 by the Government of India, called Ayushman Bharat. This aimed to cover the bottom 50% (500 million people) of the country's population working in the unorganized sector (enterprises having less than 10 employees) and offers them free treatment at both public and private hospitals. For people working in the organized sector (enterprises with more than 10 employees) and earning a monthly salary of up to ₹21,000 are covered by the social insurance scheme of Employees' State Insurance which entirely funds their healthcare (along with unemployment benefits), both in public and private hospitals. People earning more than that amount are provided health insurance coverage by their employers through either one of the four main public health insurance funds which are the National Insurance Company, The Oriental Insurance Company, United India Insurance Company and New India Assurance or a private insurance provider. As of 2020, 300 million Indians are covered by insurance bought from one of the public or private insurance companies by their employers as group or individual plans.

Indian nationals and expatriates who work in the public sector are eligible for a comprehensive package of benefits including, both public and private health, preventive, diagnostic, and curative

services and pharmaceuticals with very few exclusions and no cost sharing. Most services including state of the art cardio-vascular procedures, organ transplants, and cancer treatments (including bone marrow transplants) are covered. Employers are responsible for paying for an extensive package of services for private sector expatriates (through one of the public or private funds) unless they are eligible for the Employees' State Insurance. Unemployed people without coverage are covered by the various state funding schemes for emergency hospitalization if they do not have the means to pay for it. In 2019, the total net government spending on healthcare was \$36 billion or 1.23% of its GDP. Since the country's independence, the public hospital system has been entirely funded through general taxation.



**Figure: 2 AIIMS New Delhi**

The National Health Policy was endorsed by the Parliament of India in 1983 and updated in 2002, and then again updated in 2017. The recent four main updates in 2017 mentions the need to focus on the growing burden of non-communicable diseases, on the emergence of the robust healthcare industry, on growing incidences of unsustainable expenditure due to health care costs and on rising economic growth enabling enhanced fiscal capacity. In practice however, the private healthcare sector is responsible for the majority of healthcare in India, and a lot of healthcare expenses are paid directly out of pocket by patients and their families, rather than through health insurance due to incomplete coverage. Government health policy has thus far largely encouraged private-sector expansion in conjunction with well designed but limited public health programmes.

Attracting 45 percent of health tourists visiting India and 30 to 40 percent of domestic health tourists, Chennai is termed "India's health capital".

In India, PHCs form a basic part of the health care system. The Medical Officer appointed to run the PHC must be a MBBS degree holder. In addition to the provision of diagnostic and curative services, the Medical Officer acts as the primary administrator for the PHC. The primary field staff, who provide outreach services, are called "ASHA (Accredited Social Health Activist)" or a

village health nurse, depending upon the Indian state where the PHC is located. The village health nurse provides service at the point of care, often in the patient's home. If additional diagnostic testing or clinical intervention is required, the patient is transported to the PHC to be evaluated by the Medical Officer. Under the national rural health mission, PHCs are rapidly being upgraded. Presently there are 23,109 PHCs in India.<sup>1</sup> Male Health workers known as MPW(Male)also play a vital role in implementation of National Programmes at grass root level. They too are the frontline workers who work at field level.

## **MATERIALS AND METHODS**<sup>6,12</sup>

### **Preparation of Balguti Extract:**

Adulsa, Ashwagandha, Awala, Badam, Badishep, Bahava, Balantshopa, Bakul, Behada, Brahmi, Dikemali, Dink, Gulvel, Hirada, Honey, Jayphal, Jyesthemadh, Khajur, Murudsheng, Nagakeshar, Nagarmotha, Owa, Pimpili, Ringani, Sagargota, Sunthi, Vaccha, Vavdinga, Vekhand were procured from local market. All procured material were added in equal quantities and about 200 gm of powder was extracted with 500 ml distilled water using Soxhlet apparatus for 6 h. Then, extract is filtered and concentrated to its 40 % by volume. This crude extract was then store in refrigerator up to further use in formulation.

### **Preparation of Sitopaladi**

Firstly, decoction was prepared by heating all accurately weighed ingredients in 1000 ml distilled water up to reduction of volume by 500 ml. Extract so obtained was then filtered. Then, 25 gm of gelatine and 37.5ml of distilled water were heated separately on water bath and 37.5 ml of glycerine was added to it and heated. Further, 10 gm sucrose was added. To clear solution, about 10 ml of extract was added and heating stopped. Lastly, orange oil was added as flavouring agent. Then, mixture was poured into moulds and allowed to cool at room temperature.

## **FORMULATION STUDIES**<sup>13</sup>

### **Formulation of Balgutisoft Lozenges:**

Firstly, about 100 gm of chocolate was melted in beaker on water bath to which about 10 gm of crude extract was added, stirred and mixed well. The mixture was then poured into moulds and allowed to cool at room temperature and solidify.

### **Formulation of Balgutihard Lozenges:**

About 40 gm of crude extract was added to 85 gm sugar and 20 ml water. Mixture was then boiled to get syrup. Further, 15% gelatine was added to it. Then, mixture was poured into moulds and allowed to solidify at room temperature.

### **Formulation of Sitopaladi Jelly:**

Sitopaladi jelly was prepared using following formula

Botanical name	Quantity
Sugar	16 parts
Bambusa bamboos	8 parts
Piper longum	4 parts
Elettaria cardamom	2 parts
Cinnamum zeylanicum	1 part
Curcuma longa	4 parts
Piper longum	2 parts
Zingiber officinale	4 parts
Glycyrrhiza glabra	8 parts
Solanum xanthocarpum	1 part
Adhatoda vasica	4 parts
Mimosops elengi	3 parts
Acorus calamus	4 parts
Messuaferreae	4 parts
Thespepsia populnae	1 part

## CONCLUSION

Although herbal medicine is used mostly for treating mild to moderate illnesses and participants were aware of its limits, the combination of self-medication, non-expert consultation and missing risk awareness of herbal medicine is potentially harmful. Medicinal plants are inseparable from local livelihoods because they have long been collected, consumed, and managed through local customs and knowledge. All the two formulations viz; Balguti, Sitopaladi were redesigned and formulated into lozenges and jellies.

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