CHAPTER 1

INTRODUCTION
1. INTRODUCTION

1.1 General Introduction

Plants have been one of the important sources of medicines ever since the dawn of human civilization. Man has gained knowledge of herbal medicine from his observation of birds and animals. With all advancement in the field of drug research plant source decorates prime position both in modern as well as in traditional system of medicine. Most of the Pharmaceutical industries are plant based. Among the higher plants of medicinal value, only few of them have been investigated. Even lower plants and marine plants used in this regards are negligible. Thus, the knowledge yet to be gained and its application is much more than what has been accomplished.

Now a day’s plant based pharmaceutical products, cosmetics food flavours and natural colors are of higher attraction globally. There is a definite trend to adopt plant-based products due to cumulative derogatory effects resulting from the use of antibiotics and synthetics; and except for a few cultivated crops, the availability of the plant-based materials is mainly from the natural sources like forest and wastelands. But, due to the ever increasing devastation of the forest and the concurrent indiscriminate exploitation of the crops, their availability from natural sources has declined. There is a need to introduce medicinal plant cultivation into the cropping systems of the country, which, besides meeting the demand of the industry, will also help to maintain the standards on quality, potency and chemical constituents. The folk medicines of almost all the countries of the world abound in the medicinal plants and tribal people wherever they exist, rely chiefly on herbal medicine, even today. [1]

1.2 Traditional Systems of Medicine

“To Rescue Man from the Clutches of Disease is a Duty, Sacred and Obligatory, from Time Immemorial”

To achieve this there are several systems of medicine practiced in the world, every system with its own basis, philosophy and therapeutics, but with one common objective that is Health for all. These systems, basically differing from each other, cannot be discounted as obsolete. They are as scientific as modern medicine if one cares to find out and work on them without prejudice.

1.2.1 Ayurveda
Ayurveda can be defined as a system, which uses the inherent principles of nature, to help maintain health in a person by keeping the individual's body, mind and spirit in perfect equilibrium with nature. Ayurveda is a Sanskrit term, made up of the words "ayus" and "veda." "Ayus" means life and "Veda" means knowledge or science. The term "Ayurveda" thus means 'the knowledge of life' or 'the science of life'. According to the ancient Ayurvedic scholar Charaka, "ayu" comprises the mind, body, senses and the soul.

The sources of Indian medicine are derived from Rig-Veda to have been compiled between 4500-1600 B.C and Ayurveda 2500-600 B.C. Charaka and Sushruta are considered highest authorities. Charaka gives 50 groups of herbs each, which he thinks are enough for the purpose of an ordinary physician and Sushruta has arranged 760 herbs in 37 sets. Ayurveda is the science of health and healing practiced by ancient Aryans, which is based on Atharvaveda, one of the oldest scriptures of Hindus, about 3000 years old. The object of Ayurveda is to counteract the imbalance of three essential elements, Vata, Pitta, and Kapha (Air, Bile and Phlegm), it is the tridosha, which regularize the normal working of the human body.

1.2.2 Unani Tibb

In Arabic “Unani” means Greek and ‘Tibb’ means medicine and the composite the term “Unani Tibb” denoted a very old system of medicine, which owes its origin to Greece.

The origin of Greek medicine is traced to Aesculapius who was probably a historical personage subsequently deified following the example of Egyptians and the other ancient people. The history of medicine and pharmacy begins from Hippocrates (460-377 B.C) born on the island of Cos, ‘Father of Medicine’ developed his theory of “Humors” there are dour humors (fluids), which enter into the constitution of the body like Blood, Phlegm, Yellow bile and Black bile. The balance of these humors in the body is health, where as imbalance of the humoral constitution result in the disease. Theophrastus (370-287 B.C), Dioscorides (about 60 A.D), Pliny the elder (A.D 23-79), Galen (A.D 130) had contributed throughout their life.

Among Arabs Rhazes (Abu Bakr Mohammad bin Zakaria Razi) died 932 A.D credited with having written nearly 250 works some of which were upon pharmaceutical subjects. Avicenna (Shaikh Bu Ali Sina) Known among Unani Physicians simply as “Shaikh” (980-1037 A.D) was the world renowned author of the “canon”. In fact he was the founder of the Greco-Arabic school of medicine.

1.2.3 Yoga
Chapter 1 Introduction

Yoga is a discipline to improve or develop one’s inherent power in a balanced manner. It offers the means to attain complete self-realisation. The literal meaning of Sanskrit Word Yoga is ‘Yoke’. Yoga can therefore be defined as a means of uniting the individual spirit with the universal spirit of God. According to Maharishi Patanjali, Yoga is the suppression of modifications of the mind. The concepts and practices of Yoga originated in India about several thousand years ago. Its founders were great Saints and Sages. The science of Yoga and its techniques have now been reoriented to suit modern sociological needs and lifestyles. Experts of various branches of medicine including modern medical sciences are realising the role of these techniques in the prevention and mitigation of diseases and promotion of health.

Yoga is one of the six systems of Vedic philosophy. Maharishi Patanjali, rightly called "The Father of Yoga" compiled and refined various aspects of Yoga systematically in his "Yoga Sutras" (aphorisms). He advocated the eight folds path of Yoga, popularly known as "Ashtanga Yoga" for all-round development of human beings. They are: - Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi. These components advocate certain restraints and observances, physical discipline, breath regulations, restraining the sense organs, contemplation, meditation and Samadhi.

1.2.4 Naturopathy

Naturopathy is a system of man building in harmony with the constructive principles of Nature on physical, mental, moral and spiritual planes of living. It has great health promotive, disease preventive and curative as well as restorative potential.

According to the manifesto of British Naturopathic Association, "Naturopathy is a system of treatment which recognises the existence of the vital curative force within the body." It therefore, advocates aiding human system to remove the cause of disease i.e. toxins by expelling the unwanted and unused matters from human body for curing diseases.

Naturopathy is an art and science of healthy living and a drugless system of healing based on well founded philosophy. It has its own concept of health and disease and also principle of treatment. Naturopathy is a very old science. We can find a number of references in our Vedas and other ancient texts. The morbid matter theory, concept of vital force and other concepts upon which Naturopathy is based are already available in old texts. The revival of Naturopathy started in India by translation of Germany’s Louis Kuhne’s book “New Science of Healing”. Shri D. Venkat Chelapati Sharma translated this book in Telgu language in 1894. Shri Shroti Kishan
Swaroop of Bijnor translated this book into Hindi and Urdu languages in 1904. All this gave a wide propagation to this system. Here, it may also be mentioned that modern Naturopathy movement was started in Germany and other western countries with Water Cure (Hydrotherapy) therapy. Water Cure was synonymous with Nature Cure in those early days. The credit of making Water Cure world famous goes to Vincent Priessnitz (1799-1851), who was a farmer. Later on, other personalities also made their contribution in this work. The name of Louis Kuhne needs special mention, which propounded the Principle of Unity of Disease and Treatment and provided a theoretical base to this method. The book New Science of Healing written by him has been translated into several languages of the world.

1.2.5 Siddha

Siddha system is one of the oldest systems of medicine in India. The term Siddha means achievements and Siddhars were saintly persons who achieved results in medicine. Eighteen Siddhars were said to have contributed towards the development of this medical system. Siddha literature is in Tamil and it is practised largely in Tamil speaking part of India and abroad. The Siddha System is largely therapeutic in nature. According to Indian history prior to Aryans migration, the Dravidian was the first inhabitant of India of whom the Tamilians were the most prominent. The Tamilians were not only the earliest civilized but also those who may more considerable progress in civilization than any other early people. The Siddhars were great scientists in ancient times. According to tradition, the origin of Siddha system of medicine is attributed to the great Siddha Ayastiyar. Some of his works are still standard books of medicine and surgery in daily use among the Siddha Medical practitioners. Like Ayurveda, this system believes that all objects in the universe including human body are composed of five basic elements namely, earth, water, fire, air and sky. The food, which the human body takes and the drugs it uses are all, made of these five elements. The proportion of the elements present in the drugs vary and their preponderance or otherwise is responsible for certain actions and therapeutic results. As in Ayurveda, This system also considers the human body as a conglomeration of three humours, seven basic tissues and the waste products of the body such as faeces, urine and sweat. The food is considered to be basic building material of human body which gets processed into humours, body tissues and waste products. The equilibrium of humours is considered as health and its disturbance or imbalance leads to disease or sickness. This system also deals with the
concept of salvation in life. The exponents of this system consider achievement of this state is possible by medicines and meditation.

1.2.6 Homeopathy

Homoeopathy today is a rapidly growing system and is being practiced almost all over the world. In India it has become a household name due the safety of its pills and gentleness of its cure. A rough study states that about 10% of the Indian population solely depend on Homoeopathy for their Health care needs and is considered as the Second most popular system of medicine in the Country. It is more than a century and a half now that Homoeopathy is being practiced in India. It has blended so well into the roots and traditions of the country that it has been recognised as one of the National System of Medicine and plays a very important role in providing health care to a large number of people. Its strength lies in its evident effectiveness as it takes a holistic approach towards the sick individual through promotion of inner balance at mental, emotional, spiritual and physical levels.

The word ‘Homoeopathy’ is derived from two Greek words, Homois meaning similar and pathos meaning suffering. Homoeopathy simply means treating diseases with remedies, prescribed in minute doses, which are capable of producing symptoms similar to the disease when taken by healthy people. It is based on the natural law of healing- "Similia Similibus Curantur” which means “likes are cured by likes”. It was given a scientific basis by Dr. Samuel Hahnemann (1755-1843) in the early 19th century. It has been serving suffering humanity for over two centuries and has withstood the upheavals of time and has emerged as a time tested therapy, for the scientific principles propounded by Hahnemann are natural and well proven and continue to be followed with success even today.

1.2.7 Sowa-Rigpa

“Sowa-Rigpa” commonly known as Amchi system of medicine is one of the oldest, Living and well documented medical tradition of the world. It has been popularly practice in Tibet, Magnolia, Bhutan, some parts of China, Nepal, Himalayan regions of India and few parts of former Soviet Union etc. There are various schools of thought about the origin of this medical tradition, some scholars believe that it is originated from India; some says China and others consider it to be originated from Tibet itself. The majority of theory and practice of Sowa-Rigpa is similar to “Ayurveda”. The first Ayurvedic influence came to Tibet during 3rd century AD but it became popular only after 7th centuries with the approach of Buddhism to Tibet. Many of this
knowledge were further enriched in Tibet with the knowledge and skills of neighbouring countries and their own ethnic knowledge. “Sowa-Rigpa” (Science of healing) is one of the classic examples of it. Gyud-Zi (four tantra) the fundamental text book of this medicine was first translated from India and enriched in Tibet with its own folklore and other medical tradition like Chinese and Persian etc. The impact of Sowa-Rigpa along with Buddhism and other Tibetan art and sciences were spread in neighbouring Himalayan regions. [2]

1.3 Herbs as Medicine

An herb has several meanings and is defined as “crude drug of vegetable origin utilized for the treatment of disease conditions often of chronic nature or to attain or maintain a condition of improved health”. Herbs include crude material such as leaves, flowers, fruit, seed, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered. Plants have been one of the important sources of medicines ever since the dawn of human civilization. With all advancement in the field of drug research plant source decorates prime position both in modern as well as in traditional system of medicine. Most of the pharmaceutical industries are plant based. Among the higher plants of medicinal value, only few of them have been investigated. Even lower plants, fungi, bacteria and marine plants used in this regards are negligible. Thus, the knowledge yet to be gained and its application is much more than what has been accomplished. Approximately, only 25% of the phytoconstituents are reported to be known and the remaining 75% are yet to be explored.

Our ancestors had documented the plant wage in the health remedy with more glory and some of the concepts of them are yet beyond our advanced research. Man has also gained such knowledge from his observation of birds and animals. The folk medicines of almost all the countries of the world abound in the medicinal plants and tribal people wherever they exist, rely chiefly on herbal medicine, even today.

There is little doubt that herbal medicines have been utilized since antiquity in the health care. The oldest prescription found on Babylonian clay tablets and the hieratic writing of ancient Egyptians on papyrus, archive numerous ancient pharmaceutical and medicinal uses of hundreds of botanicals and foods e.g., olive oil, turpentine, myrrh, opium, castor oil, garlic etc. the earliest Chinese book on medicinal herbs was written by emperor Shen-Nung about 3000 years B.C. The Persians, Romans, Greeks, Hebrews, Arabs and other races were all familiar with the use and practice of herbal medicine. In the Indian subcontinent, about 2000 plants are listed in the
Ayurvedic, Unani and Tibbi systems of medicine, and these herbal remedies are still providing the most widely used treatment for the people of this area. Currently there is a renaissance occurring in the appreciation of the plants as medicinal agents the world over. Technology now exists which allows for greater understanding of the manner in which herbs promote health and restore balance in disease. This worldwide botanical cornucopia represents an eclectic collection of the most reliable early medicines that even today serve to prevent and cure diseases. The World Health Organization (WHO) records the fact that 80% of the world’s population still relies on botanical medicines. There are several factors that may be cited for the interest in natural system of medicine, now commonly known as “Complementary and Alternative Medicine” (CAM) including the use of herbal medicines. These include consumer interest in perceived “Natural” medicines, increased interest in fitness health, and prevention directed towards longer and healthier lives, and the increase in chronic disease related to aging. Coupled with these factors, the rise in cost of conventional medicines, an increased side and adverse reactions, have paved the way to apply traditional medicine for health of all to circumvent these difficulties.

Many herbs contain powerful ingredients that, if used correctly, can help heal the body. The early pharmaceutical industry was based upon its ability to isolate these ingredients, and make them available in a purer form. The practitioners of herbal medicines, however, contend that nature provided other ingredients in the same herb to balance with the more powerful ingredients. These other components, though they may be relatively less potent, but may help to act as buffer, a synergist, or a counterbalance when working in harmony with the more powerful ingredients. Therefore, by using these herbs in their complete form, the body’s healing process utilizes a balance of ingredients provided by nature. The important active chemical constituents from plants include Reserpine, Sennosides, Hyoscine, Scopolamine, Picroliv, Bacosides, Vincristine, Vinblastin, Artemisinin, Gingolide, Morphine, Codeine, Papaverine, Taxol, Noscapine and from the Chinese system constituents of Ginseng and Gingobiloba. Active constituents of Garlic and Gugal are extremely useful as cardiac protective. Similarly promising drugs are being discovered as Antispasmodic, Antidiabetic, Anti-filarial, and Cardiovascular and even plant-based extracts for skincare. Constituents of ginseng, Gingobiloba and Camomila are also useful in many conditions.
An important factor about herbal medicines or products is that they contain a wide variety of compounds from various classes. Often, therapeutic action is due to the combined action of several constituents synergistically. Chemical constituents of plant varies depending on genetics, environment (sunlight, rainfall and land), and fertilization. In fact, it is possible to see mixed activity depending on which compounds predominates. Collection at different times of the year also affects herb quality and clinical efficacy owing to the formation of bioactive metabolites.

Access to scientific literature is crucial to the pharmacist for his or her role as a drug information provider. The pharmacist among all health care practitioners is the best portion to provide information about drug safety and the effectiveness. If a herb is used as therapeutic agent it should be considered as a drug. The quality control in herbal medicine is getting more attention and some of the herbs are covered in the British herbal Pharmacopoeia and many in the Ayurvedic Pharmacopoeia of India. A good attempt is made with the Ayurvedic formulary of India to assist preparing medicines of quality standards. At present there is emerging preference all over the world including WHO for use of traditional medicines for inexpensive and safe herbal medicines for the masses.\[3\]

1.4 Traditional Medicines

There are several definitions and interpretations of this term, "traditional medicine". The most comprehensive is the one where the WHO has defined it as "The sum total of all the knowledge and practice, whether explicable mental or social imbalance, whether verbally or in writing".

Today we are more concentrated with the life style diseases like depression, cancer and heart troubles caused by faulty nutrition and stress. Therefore there is a need of alternative therapy to cover a good health for all. Herbal therapy will be one of the best practices to overcome the illness. Traditional Indian practice held that certain drugs should be formulated through the addition of chosen substance that enhances bioavailability of the drug. Recent work particularly in to Indian modern biology labs, Pepper has confirmed due to its bioavailability enhancer property and point to the active component as the molecule piperine. Herbal oriented pharmaceutical companies like Dabur, Hamdard and Himalaya Drug Company are investing billions of rupees on research and development and popularizing OTC remedies. Treatment of chronic diseases with herbal medicine have become the effective because of easy availability, low cost and comparatively being devoid of
serious toxic effects (time tested) Natural products (crude drug extracts and pure compounds) have been derived from higher plants, microbes or animals and these can be of either terrestrial or marine origin. Many of the reputed medicinal plants came under chemical scrutiny leading to the isolation of active principles. Beginning with 1800 A.D., there isolation and characterized extracts, became part of pharmacopoeias of several countries. This is where herbal medicine and modern medicine have a common link. [4]

1.5 Herbal Formulations and Excipients

Herbal preparation called “Phytopharmaceuticals” or “phytomedicine” are preparation made from different parts of the plants. They came in different formulations and dosage forms including tablets, capsules, elixirs, powders, extract, tinctures, ointments, creams and gels. Herbal products in the crude state are also used. A single isolated principle derived from plants such as digoxin and reserpine tablets are not considered as an herbal medicine.

Drugs are chemical compounds and they rarely administered or dispensed to patients in their native forms but are formulated into dosage forms that ensure large scale manufacture, reproducibility of product quality, accurate dosage, predictive therapeutic response, convenience of prescribing and administration as well as compliance with usage directive by the patient.

Dosage forms vary from the very simple forms such as tablets, capsules, liquid preparations, creams and suppositories to the more complex drug delivery systems such as the transdermal patches and the intravenous pumps. The design, formulation and manufacture of dosage forms entail the use of substances known as excipients or additives which ensure that the characteristic physical features of the desired dosage form are obtained and that the therapeutic performance, safety parameters and stability of the active drug substance are not compromised. Such pharmaceutical ingredients are expected to be non-therapeutic and non-toxic.

Excipients are primarily used as diluents, binders, disintegrants, adhesives, glidants and sweeteners in conventional dosage forms like tablets and capsules. As the establishment of toxicity and approval from regulatory authorities poses a problem with synthetic excipients, of late more interest is being shown by researchers in herbal excipients. The drawback posed by heavy metal contamination often associated with herbal excipients is superseded by their lack of toxicity, easy availability, and economic considerations in pharmaceutical industry as compared to their synthetic counterparts. Present day consumers look for natural ingredients in food, drugs, and cosmetics as they believe that anything natural will be more safe and devoid of side effects.
The traditional view that excipients are inert and do not exert any therapeutic or biological action or modify the biological action of the drug substance has changed and it is now recognized that excipients can potentially influence the rate and/or extent of absorption of a drug. As herbal excipients are non toxic and compatible, they have a major role to play in pharmaceutical formulation. Pharmaceutical excipients do not have any kind of therapeu
tic activity, but they aid in the preparation of several formulations with active ingredients. Herbal Era offers extensive range of pure pharmaceutical excipients for a wide range of pharmaceutical formulations. These include materials such as starch used as binders in tablet formulation, gums used as emulsifiers and suspending agents, beeswax used in cream preparations, Carbopol polymers used in gels, sugar used as sweetener, as well as colourants, flavourants and preservatives. Formulation of pharmaceutical dosage forms is both an art and a science designed to fit into the appropriate pharmaceutical technology, leading to the emergence of a medicinal product that is therapeutically effective, stable and easy to administer. The traditional herbal products formulator no doubt is imbued with the art as well as the indigenous science and technology presumed adequate for his manufacturing outfit. [5,6]

1.6 Natural Preservatives

Plants in the wild do not go mouldy, and yet they are in an environment that predisposes them to suffer from the infestation of all manner of spoilage organisms. Yeasts, moulds and bacteria abound in the soil, all working to breakdown dead plant material and provide fresh humus for those plants living in the soil. Living plants resist the natural forces of disintegration. The chemicals present in all parts of the plant protect it from the environment. However, examples can be seen where tampering with the plant leads to a reduction in the efficacy of this natural mechanism.

Consider the rose. A highly refined cultivar rose, which has been selectively bred for its flowers, loses much of its immunity and is prone to black spot, mould and mildew. The older, original rose stock (Rosa sinensis) from which the cultivar has been partially developed, remains unaltered, unbred and totally oblivious to the blights and blemishes of its modified offspring.

It is concluded, that the chemical constituents within each plant clearly differ in composition, even though the older rose is a direct genetic relative of the cultivar. Furthermore, that there is a chemical or group of chemicals present in the plant that is capable of killing micro-organisms.
This chemical composition varies according to whether the plant is alive or dead, and in certain/most plants will vary according to season.

In many cases, when these plants are extracted, it is found that the extracts are capable not only of resisting certain spoilage organisms, but in some cases can actively act to destroy them. It was realized that the possibility of using plants as natural preservatives was achievable. The data base was quizzed for those plants that were capable of killing micro-organisms. [7]

1.7 Anatomy and physiology of skin

The skin or the integument is the external organ that protects against mechanical trauma. Skin is the largest organ of the body and having a total area of about 20 square feet. The skin protects us from microorganisms and the elements, helps regulate body temperature, and permits the sensations of touch, heat, cold and has aesthetic role for appearance of the individual. Skin has three layers like epidermis, the outermost layer of skin, provides a waterproof barrier and creates our skin tone. The dermis, beneath the epidermis, contains tough connective tissue, hair follicles, and sweat glands which consist of 2 parts, the superficial papillary dermis and the deeper reticular dermis. The deeper subcutaneous tissue (hypodermis) is made of fat and connective tissue. Skin plays a very important function like Regulates body temperature, stores water and fat, is a sensory organ, prevents water loss and prevents entry of bacteria.

Figure 1
Dermatosis is a common term used for any skin disorder. Skin diseases are just like the common cold. Apart from some of the skin cancers, they vary enormously from mild conditions which may affect only the appearance of the skin to severe diseases which are totally incapacitating. The degree of treatment required, or even sought, varies accordingly. Everyone in the community will suffer from at least one skin condition during their lifetime. Conditions such as warts and acne are almost universal at certain ages. However, whether people recognize or report many of these common conditions as disease will vary according to the area affected and the severity of the problem. The skin conditions occur on the surface of the body where they are easily seen, they are often noticed first when they might be considered to be relatively mild. Under such circumstances, a person with a mild condition may decide that they don’t want to bother a doctor about something that might be considered trivial. Likewise they may think it is too expensive to seek professional advice for a mild condition. Consequently, they may show it to their family or friends initially. They may attend a pharmacist where many efficacious products for mild skin conditions are available over the counter without prescription. Dermatosis may be of many types such as genetic, inflammatory, infectious, granulomatous, connective tissue, bullous and scaling type. Skin Diseases which are prevalent throughout the world are as follows.

1.7.1 Acne
Acne (pimples) is a common skin condition characterized by the presence of various spots called comedones (blackheads and whiteheads), papules, pustules, and, in severe cases, nodules and cysts. The development of acne coincides with the onset of puberty when androgen hormones, such as testosterone, are released. These hormones can cause the sebaceous glands to overproduce sebum (oil), which leads to blockage and the typical spots associated with acne. Even though many consider acne to be a normal part of growing up, it can have serious effects on a young person’s academic performance and their ability to interact socially.

1.7.2 Rosacea
Rosacea is a chronic skin condition that makes your face turn red and may cause swelling and skin sores that look like acne. It is an inflammatory skin condition that affects adults. It causes redness in your face and produces small, red, pus-filled bumps or pustules. Left untreated, rosacea tends to be progressive, which means it gets worse over time. However, in most people rosacea is cyclic. Rosacea signs and symptoms may flare up for a period of weeks to months, and
then diminish before flaring up again. Besides acne, rosacea can be mistaken for other skin problems, such as a skin allergy or eczema.

1.7.3 Hives (urticaria)
Hives are also known as urticaria, welts, wheals, or nettle rash. It is a red, raised, itchy skin rash that is sometimes triggered by something that produces an allergic reaction - an allergen. When there is an allergic reaction the body releases a protein called histamine. When histamine is released our capillaries (tiny blood vessels) leak fluid. The fluid accumulates in the skin and causes a rash.

1.7.4 Nappy Rash (Napkin Dermatitis)
Nappy rash is an inflammatory skin condition localized to the nappy area. It is usually red and can cause discomfort in the infant or toddler affected. It is caused by contact with urine and faeces which are irritating substances, and occurs on areas of the skin which are in contact with the nappy. The deep skin folds in the groin may therefore not be affected. Other types of eczema or dermatitis such as atopic dermatitis and seborrhoeic dermatitis can occur in the nappy area and may be associated with an increased tendency to nappy rash.

1.7.5 Atopic Dermatitis (Eczema)
Atopic dermatitis is an inflammatory skin condition which manifests as a red, scaly rash that is normally very itchy. It tends to be an inherited condition which runs in families along with asthma and hay fever. In general, it occurs first on the face in infants and then on the front of the elbows and behind the knees (the flexures) with increasing age. It can occur on any part of the skin at some stage, depending on age and exposure to environmental irritants. For example, in mothers with young babies, or hairdressers, it may occur on the hands.

1.7.6 Seborrhoeic Dermatitis
Seborrhoeic dermatitis is an inflammatory skin condition which usually occurs in hair bearing areas, such as the scalp, chest or beard, and in the flexures, particularly under the arms, sub mammary region and in the groin or perianal region. It manifests as a red, scaly rash, which may appear shiny or greasy looking. In newborns, it is a cause of cradle cap and can occur in the face, nappy area, and other flexures. The cause of the condition is unknown, although it can be precipitated by cold, dry weather, contact with irritating substances such as soap, scratching and periods of worry and anxiety.
1.7.7 Psoriasis

Psoriasis is an inflammatory skin disease characterized by a red, scaly rash, which can be itchy. A typical lesion is a well-defined raised plaque with a silvery scale. It occurs classically on the elbows, knees and in the scalp, but can occur on any part of the body on occasion, including the flexures. It can cause the nails to become pitted, discolored and fragile. While the cause of psoriasis is essentially unknown, it appears to be more common in some families. It has also been associated with various factors in those people who are predisposed to psoriasis, such as trauma to the skin, streptococcal upper respiratory infections, stress, some medications, heavy alcohol intake and smoking.

1.7.8 Warts

Warts are a viral infection of the skin caused by the Human Papilloma Virus (HPV). There are several different types, two of which will be reported in this chapter: common warts (verruca vulgaris) and plantar warts (verruca plantaris). Common warts are flesh-colored lesions occurring most frequently on the hands, fingers and knees. They can also grow at a site where an injury has occurred. They are not usually painful, although they may cause pain if they develop at a site where pressure occurs, e.g. knuckle or the knee. Plantar warts (also called papillomas) are flesh-colored and are found on the sole of the foot. They are flat as the person’s body weight forces them to grow inwards. This can be very painful.

1.7.9 Vitiligo or leucoderma

Vitiligo or leucoderma is a chronic skin disorder in which the skin loses its normal color. The term leucoderma means white (leuco) skin (derma). It is a condition which causes white patches on the skin because of loss of melanin (the pigment responsible for the color of skin, hair and eyes). Vitiligo affects about 1.2% of the world population, and about 8% of the Indian and Mexican populations. Leucoderma is caused due to destruction of melanin (the color pigment present in the skin) and lack of formation of melanin. The exact cause of leucoderma is not known but it is probably caused due to genetic and immunological factors (disturbance of the immune system). The loss of skin color and rate of loss can vary from patient to patient. The disease has more social or cosmetic implication than medical significance (especially in people with dark colored skin).
1.7.10 Tinea Pedis and Tinea Unguium

Tinea (also called ringworm) is an infection of the skin, nails or hair caused by dermatophyte fungi. Dermatophytes are grouped into three classes: Trichophyton, Epidermophyton and Microsporum. Each of these classes of fungi can infect the skin, but Microsporum tends not to involve the nails and Epidermophyton seldom invades hair. Tinea is also classified clinically based on what area is infected. Two types of tinea will be reported in this chapter: tinea Pedis (tinea of the foot) and tinea unguium (tinea of the nail). Tinea pedis manifests as a red, scaly, rash on the foot which can be itchy on occasion. It commonly occurs between the toes, particularly between the 4th and 5th toes, but can occur anywhere on the foot.

Tinea unguium (also called dermatophyte onychomycosis) manifests as discoloration of the nail plate and there may be a build-up of infectious material and cells under the nail plate. The nail plate may occasionally partially lift away from the nail bed. This condition is usually accompanied by tinea pedis.

1.7.11 Birthmarks

There are several different types of birthmarks, which, as the name suggests, are often present at birth or in early infancy. They are areas of abnormal skin cell development, in which a particular type of cell may have a higher proportion than other types. There are four types of birthmark: Salmon patch, haemangiomas, congenital melanocytic naevi and Mongolian spot. A salmon patch is a vascular lesion due to large numbers of small blood vessels which are very close to the surface of the skin. They are harmless and are normally found on the neck, forehead and eyelids. Haemangiomas (also called strawberry naevi) are red vascular lesions. They are made up of large numbers of capillaries. They are commonly found on the head and neck. Congenital melanocytic naevi (moles) are due to a problem with the movement of melanocytes during an infant’s development. This leads to an accumulation of a large number of cells and hence the dark appearance of the mole. Mongolian spots are grey or brown areas found on the buttocks or the sacrum. They are due to increased melanin production, particularly among children born to Asian parents.

1.7.12 Campbell de Morgan Spots

Campbell de Morgan spots (also called cherry angiomas) are small, cherry red, smooth spots which are found on the trunk of middle aged or elderly people. They do not bleed and they have
no symptoms. The cause is unknown. While they appear to be very common in the community, the prevalence has not been previously reported.

1.7.13 Seborrhoeic Keratoses
Seborrhoeic keratoses (also called seborrhoeic warts) are very common benign growths. They are usually round, dark brown or almost black warty growths which occur on the face and trunk. On the back of the hands and forearms, they are often dark and flat, described as “liver spots”. On the lower legs they may be pale scaling spots in large numbers described as “stucco keratoses”. They have been described as “senile warts” in the past because of a belief that they were a condition of older people. [9]

1.8 Classification of Dermatological Ayurvedic formulations
There are a number of skin diseases prevalent in the rainy season. Ayurveda suggest that, this is the time for pitta aggravation. All the heat that accumulates in the body in the greesham ritu (summer season) is aggravated in the rainy season. Especially in India, this is the time when one can see big crowds in skin clinics. Ayurveda can effectively treat skin conditions such as Psoriasis, Eczema and Urticaria. Ayurveda recommends herbs to protect you against the outside world and gives you glowing skin that reflects your overall health. Skin can tell a lot about the condition of your inner-self. Today ayurveda is largely use for various skin problems such as pigmentation and rashes. Ayurvedic treatment for skin problem includes certain alterations in diet, life style and intake of specific herbs.

Some of the commonly used ayurvedic formulations for treatment of skin problems are: arogya vardhini, trivanga bhasma, mahamanjishthadi qadha (decoction), khadirarishta, krumikuthar rasa, krumimudgar rasa, saarivasav, and rasa manikya. Manjishta (Rubia cordifolia), saariva (Hemidesmus indicus), triphala (three fruits), haridra (Curcuma longa), daruharidra (Berberis aristata), khadir (Acacia catechu), vidanga (Embilia ribes) and bavachi (Psoralia corylifolia).

Vati (Tablet): For internal use only- Pathyadi ghanvati, Saptaparna ghanvati, Kalingaadi vati, Panchtikta grita guggulu vati, Triphala vati, Samsamani vati, Swayambhuv guggulu etc.

Medicated grita (clarified butter prepared with ayurvedic herbal medicines): For internal use- Khadira grita, Darvi grita, Patola grita, Panchtikta grita, Mahatiktak grita etc.

Medicated taila (Medicated ayurvedic oils): For external use only- Nimba taila, Karanja taila, Arka taila, Cutisora oil, Psoria oil etc.
Lepa (Medicated paste): For external use only- Dashang lepa, Aargwadhadi lepa, Haridra lepa, Nimba lepa etc.

Medicated soap: For external use only- Elaadi soap, Rakta chandan soap, Medimix soap etc.

Kwath (Decoctions): For internal use- Triphala kwath, Patoladi kwath, Pathyadi kwath, Guduchyadi kwath etc.

Churna (Ayurvedic herbal powders): For internal use- Mustadi churna, Haridra churna, Triphala churna, Trivritadi churna etc.

Medicated wines: For internal use only- Khadirarishta, Vidangarishta, Amrutarishta, Bringrajasav etc. \[10\]

1.9 Antimicrobial Category of Herbal Drugs

Studies involving traditional medicines frequently contribute new ideas. Numerous encouraging leads have come up with the convergence of empirical uses of various species in various parts of the globe showing potential antimicrobial property. Antimicrobial activity of plants can be detected by observing the growth response of various microorganisms to those plant tissues or extracts, which are placed in contact with them. The list of plants which exhibit antimicrobial activity is ever increasing e.g. Neem (Azardirecta indica), Acacia (Acacia farnesiana, nilotica), Garlic (Allium sativum), Bardana (Arctium lappa), Large Indian Cress (Tropaeolum majus), Cumin (Cuminum ciminum), Eucalyptus (Eucalyptus globulus and other sp), Jacaranda (Jacaranda mimosaefolia), Lichens (Cetraria islandica and others), Marcela or Macela (Achyroclyne satureoides), Yarrow (Achillea millefolium), Walnut (Juglans regia), Oregano (Origanum vulgare), Grapefruit (Citrus paradise), Pine (Pinus silvestris), Thyme (Thymus vulgaris), Cat's Claw (Uncaria tormentosa) etc.

Many methods for detecting such activity are available, but since they are not equally sensitive or even based on the same principle, the result obtained will also be influenced by the method selected and the microorganisms used for the test. In order to detect antimicrobial activity in plant extracts, three conditions must be fulfilled. First, the plant extract must be brought into contact with the cell wall of the microorganisms. Second, conditions must be adjusted so that the microorganisms are able to grow when no antimicrobial agents are present. Third, there must be some means of judging the amount of growth, if any, made by the test organism during the period of time chosen for the test. The currently available methods for antimicrobial screening fall into three groups’ viz. diffusion, dilution and bioautographic methods.
In the diffusion technique, a reservoir containing the plant extract to be tested is brought into contact with an inoculated medium (e.g. agar) and, after incubation; the diameter of the zone around the reservoir (inhibition diameter) is measured. In order to lower the detection limit, the inoculated system is kept at a low temperature during several hours before incubation, which favors diffusion over microbial growth and thus increases the inhibition diameter.

In the dilution method, samples being tested are mixed with a suitable medium that has previously been inoculated with the test organism. After incubation, growth of the microorganisms may be determined by direct visual or turbidimetric comparison of the test culture with a control culture which did not receive the sample being tested, or by plating out both test and control cultures. Usually a series of dilutions of the original sample in the culture medium is made and then inoculated with the test organism. After incubation, the end point of the test is taken as the highest dilution which will just prevent perceptible growth of the microorganism (MIC-value).

Bioautography, as a method to localize antibacterial activity on a chromatogram, has found widespread application in the search for new antibiotics from microorganisms. Most published procedures are based on the agar diffusion technique, whereby the antimicrobial agent is transferred from the thin layer or paper chromatogram to an inoculated agar plate through a diffusion process. Zones of inhibition are then visualized by appropriate vital stains. [11]

1.10 Merits of Herbal Formulation.

The plant kingdom is gold mine for novel and affordable skin care acting through novel mechanisms against pathogens causing skin infection. Many efforts have been made to discover new antimicrobial compounds from various kinds of sources such as micro-organisms, animals, and plants. One of such resources is folk medicines. Systematic screening of them may result in the discovery of novel effective compounds. Antimicrobials of plant origin are not associated with many side effects, enormous therapeutic potential to heal many infectious diseases and low cost of treatment.

1.11 Demerits of Synthetic Formulation.

Dermatological infections and allergic reactions are very common in urban and rural areas throughout the world. Due to very drastic change and fluctuations in climatic conditions, increase in pollution due to industrialization and use of steroids, this increases the difficulty of masses by high cost, inadequate cure and vast side effects. The increasing prevalence of
multidrug resistant strains of bacteria and the recent appearance of strains with reduced susceptibility to antibiotics raises the specter of untreatable bacterial infections and adds urgency to the search for new infection-fighting strategies. [12, 13]