Herbalism
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Herbalism is a traditional medicinal or folk medicine practice based on the use of plants and plant extracts. Herbalism is also known as botanical medicine, medical herbalism, herbal medicine, herbology, herblore, and phytotherapy. The scope of herbal medicine is sometimes extended to include fungal and bee products, as well as minerals, shells and certain animal parts.[1] Pharmacognosy is the study of medicines derived from natural sources.

Traditional use of medicines is recognized as a way to learn about potential future medicines. In 2001, researchers identified 122 compounds used in mainstream medicine which were derived from "ethnomedical" plant sources; 80% of these compounds were used in the same or related manner as the traditional ethnomedical use.[2]

Plants have evolved the ability to synthesize chemical compounds that help them defend against attack from a wide variety of predators such as insects, fungi and herbivorous mammals. By chance, some of these compounds, whilst being toxic to plant predators, turn out to have beneficial effects when used to treat human diseases. Such secondary metabolites are highly varied in structure, many are aromatic substances, most of which are phenols or their oxygen-substituted derivatives. At least 12,000 have been isolated so far; a number estimated to be less than 10% of the total. Chemical compounds in plants mediate their effects on the human body by binding to receptor molecules present in the body; such processes are identical to those already well understood for conventional drugs and as such herbal medicines do not differ greatly from conventional drugs in terms of how they work. This enables herbal medicines to be in principle just as effective as conventional medicines but also gives them the same potential to cause harmful side effects. Many of the herbs and spices used by humans to season food yield useful medicinal compounds.[3][4]

Similarly to prescription drugs, a number of herbs are thought to be likely to cause adverse effects.[5] Furthermore, "adulteration, inappropriate formulation, or lack of understanding of plant and drug interactions have led to adverse reactions that are sometimes life threatening or lethal.[6]Contents [hide]

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In addition to the use in the developing world, herbal medicine is used in industrialized nations by alternative medicine practitioners such as naturopaths. A 1998 survey of herbalists in the UK found that many of the herbs recommended by them were used traditionally but had not been evaluated in clinical trials.[35] In Australia, a 2007 survey found that these Western herbalists tend to prescribe liquid herbal combinations of herbs rather than tablets of single herbs.[36]

The use of, and search for, drugs and dietary supplements derived from plants have accelerated in recent years. Pharmacologists, microbiologists, botanists, and natural-products chemists are combing the Earth for phytochemicals and leads that could be developed for treatment of various diseases. In fact, according to the World Health Organisation, approximately 25% of modern drugs used in the United States have been derived from plants.[37]
Among the 120 active compounds currently isolated from the higher plants and widely used in modern medicine today, 80 percent show a positive correlation between their modern therapeutic use and the traditional use of the plants from which they are derived.[2]
More than two thirds of the world's plant species - at least 35,000 of which are estimated to have medicinal value - come from the developing countries.[verification needed]
At least 7,000 medical compounds in the modern pharmacopoeia are derived from plants[38]

As Eisenburg states in his book, Encounters with Qi: “The Chinese and Western medical models are like two frames of reference in which identical phenomena are studied. Neither frame of reference provides an unobstructed view of health and illness. Each is incomplete and in need of refinement." Specifically, the traditional Chinese medical model could effect change on the recognized, and expected, phenomena of detachment to patients as people and estrangement unique to the clinical and impersonal relationships between patient and physician of the Western school of medicine.[39]
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Biological background

The anthocyanins in sweet violets produce deep red, violet and blue shades.

The carotenoids in primrose produce bright red, yellow and orange shades.

All plants produce chemical compounds as part of their normal metabolic activities. These are divided into primary metabolites, such as sugars and fats, found in all plants, and secondary metabolites, compounds not essential for basic function found in a smaller range of plants, some useful ones found only in a particular genus or species. Pigments harvest light, protect the organism from radiation and display colors to attract pollinators. Many common weeds, such as nettle, dandelion and chickweed, have medicinal properties.[40][41]

The functions of secondary metabolites are varied. For example, some secondary metabolites are toxins used to deter predation, and others are pheromones used to attract insects for pollination. Phytoalexins protect against bacterial and fungal attacks. Allelochemicals inhibit rival plants that are competing for soil and light.

Plants upregulate and downregulate their biochemical paths in response to the local mix of herbivores, pollinators and microorganisms.[42] The chemical profile of a single plant may vary over time as it reacts to changing conditions. It is the secondary metabolites and

pigments that can have therapeutic actions in humans and which can be refined to produce drugs.

Plants synthesize a bewildering variety of phytochemicals but most are derivatives of a few biochemical motifs.
Alkaloids contain a ring with nitrogen. Many alkaloids have dramatic effects on the central nervous system. Caffeine is an alkaloid that provides a mild lift but the alkaloids in datura cause severe intoxication and even death.
polyphenol, also known as phenolics, contain phenol rings. The anthocyanins that give grapes their purple color, the isoflavones, the phytoestrogens from soy and the tannins that give tea its astringency are phenolics.
Terpenoids are built up from terpene building blocks. Each terpene consists of two paired isoprenes. The names monoterpenes, sesquiterpenes, diterpenes and triterpenes are based on the number of isoprene units. The fragrance of rose and lavender is due to monoterpenes. The carotenoids produce the reds, yellows and oranges of pumpkin, corn and tomatoes.
Glycosides consist of a glucose moiety attached to an aglycone. The aglycone is a molecule that is bioactive in its free form but inert until the glycoside bond is broken by water or enzymes. This mechanism allows the plant to defer the availability of the molecule to an appropriate time, similar to a safety lock on a gun. An example is the cyanoglycosides in cherry pits that release toxins only when bitten by a herbivore.

The word drug itself comes from the Dutch word "droog" (via the French word Drogue), which means 'dried plant'. Some examples are inulin from the roots of dahlias, quinine from the cinchona, morphine and codeine from the poppy, and digoxin from the foxglove.

The active ingredient in willow bark, once prescribed by Hippocrates, is salicin, which is converted in the body into salicylic acid. The discovery of salicylic acid would eventually lead to the development of the acetylated form acetylsalicylic acid, also known as "aspirin", when it was isolated from a plant known as meadowsweet. The word aspirin comes from an abbreviation of meadowsweet's Latin genus Spiraea, with an additional "A" at the beginning to acknowledge acetylation, and "in" was added at the end for easier pronunciation.[43]
"Aspirin" was originally a brand name, and is still a protected trademark in some countries. This medication was patented by Bayer AG.
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Herbal philosophy

Rosemary

Four approaches to the use of plants as medicine include:

1. The magical/shamanic

Almost all non-modern societies recognise this kind of use. The practitioner is regarded as endowed with gifts or powers that allow him/her to use herbs in a way that is hidden from the average person, and the herbs are said to affect the spirit or soul of the person.

2. The energetic

This approach includes the major systems of TCM, Ayurveda, and Unani. Herbs are regarded as having actions in terms of their energies and affecting the energies of the body. The

for Pharmaceutical Research and Development. According to research in the African Journal of Biotechnology, Gawo passed tests for toxicity and reduced induced fevers, diarrhoea and inflammation [68]

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Routes of administration

The exact composition of a herbal product is influenced by the method of extraction. A tisane will be rich in polar components because water is a polar solvent. Oil on the other hand is a non-polar solvent and it will absorb non-polar compounds. Alcohol lies somewhere in between. There are many forms in which herbs can be administered, these include:

Tinctures - Alcoholic extracts of herbs such as Echinacea extract. Usually obtained by combining 100% pure ethanol (or a mixture of 100% ethanol with water) with the herb. A completed tincture has a ethanol percentage of at least 25% (sometimes up to 90%).[69] The term tincture is sometimes applied to preparations using other solvents than ethanol.

Herbal wine and elixirs - These are alcoholic extract of herbs; usually with an ethanol percentage of 12-38% [69] Herbal wine is a maceration of herbs in wine, while an elixir is a maceration of herbs in spirits (e.g., vodka, grappa, etc.)

Tisanes - Hot water extracts of herb, such as chamomile.

Decoctions - Long-term boiled extract of usually roots or bark.

Macerates - Cold infusion of plants with high mucilage-content as sage, thyme, etc. Plants are chopped and added to cold water. They are then left to stand for 7 to 12 hours (depending on herb used). For most macerates 10 hours is used.[69]

Vinegars - Prepared at the same way as tinctures, except using a solution of acetic acid as the solvent.

Topicals:

Essential oils - Application of essential oil extracts, usually diluted in a carrier oil (many essential oils can burn the skin or are simply too high dose used straight – diluting in olive oil or another food grade oil such as almond oil can allow these to be used safely as a topical).[70]

Salves, oils, balms, creams and lotions - Most topical applications are oil extractions of herbs. Taking a food grade oil and soaking herbs in it for anywhere from weeks to months allows certain phytochemicals to be extracted into the oil. This oil can then be made into salves, creams, lotions, or simply used as an oil for topical application. Any massage oils, antibacterial salves and wound healing compounds are made this way.

Poultices and compresses - One can also make a poultice or compress using whole herb (or the appropriate part of the plant) usually crushed or dried and re-hydrated with a small amount of water and then applied directly in a bandage, cloth or just as is.

Whole herb consumption - This can occur in either dried form (herbal powder), or fresh juice, (fresh leaves and other plant parts).

Syrups - Extracts of herbs made with syrup or honey. Sixty five parts of sugar are mixed with 35 parts of water and herb. The whole is then boiled and macerated for three weeks.[69]

Extracts - Include liquid extracts, dry extracts and nebulisates. Liquid extracts are liquids with a lower ethanol percentage than tinctures. They can (and are usually) made by vacuum distilling tinctures. Dry extracts are extracts of plant material which are evaporated into a dry mass. They can then be further refined to a capsule or tablet.[69] A nebulisate is a dry extract created by freeze-drying.

Inhalation as in aromatherapy can be used as a mood changing treatment[71][72] to fight a sinus infection or cough [73][citation needed], or to cleanse the skin on a deeper level (steam rather than direct inhalation here)[citation needed]

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