

Herbalism-A New Approach to Treat Ailments

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ABSTRACT: Plants have long been recognized for their therapeutic properties. For centuries, indigenous cultures around the world have used traditional herbal medicine to treat a myriad of maladies. By contrast, the rise of the modern pharmaceutical industry in the past century has been based on exploiting individual active compounds with precise modes of action. This surge has yielded highly effective drugs that are widely used in the clinic, including many plant natural products and analogues derived from these products, but has fallen short of delivering effective cures for complex human diseases with complicated causes, such as cancer, diabetes, autoimmune disorders and degenerative diseases. While the plant kingdom continues to serve as an important source for chemical entities supporting drug discovery, the rich traditions of herbal medicine developed by trial and error on human subjects over thousands of years contain invaluable biomedical information just waiting to be uncovered using modern scientific approaches. Here we provide an evolutionary and historical perspective on why plants are of particular significance as medicines for humans. We highlight several plant natural products that are either in the clinic or currently under active research and clinical development, with particular emphasis on their mechanisms of action. Recent efforts in developing modern multi-herb prescriptions through rigorous molecular-level investigations and standardized clinical trials are also discussed. Emerging technologies, such as genomics and synthetic biology, are enabling new ways for discovering and utilizing the medicinal properties of plants. We are entering an exciting era where the ancient wisdom distilled into the world's traditional herbal medicines can be reinterpreted and exploited through the lens of modern science.

KEYWORDS: herbalism, ailments, approach, plants, therapeutic, discovery, nature, traditional, medicinal

I.INTRODUCTION

Herbal medicine is the use of plants to treat disease and enhance general health and wellbeing. Herbs can interact with other pharmaceutical medications and should be taken with care. Always see your regular medical doctor (GP) about any health concerns and tell them about any herbal medicines you are taking or thinking of taking. Never stop taking prescribed medications in favour of herbs without first discussing it with your GP. Be careful about purchasing herbal medicines over the internet. Unregulated herbal medicines, such as some traditional folk medicines, may not be manufactured to the same quality and standard as regulated medicines. Herbal medicine has its origins in ancient cultures. It involves the medicinal use of plants to treat disease and enhance general health and wellbeing. Some herbs have potent (powerful) ingredients and should be taken with the same level of caution as pharmaceutical medications. In fact, many pharmaceutical medications are based on man-made versions of naturally occurring compounds found in plants. For instance, the heart medicine digitalis was derived from the foxglove plant.[1,2]

Herbal medicines contain active ingredients. The active ingredients of many herbal preparations are as yet unknown. Some pharmaceutical medications are based on a single active ingredient derived from a plant source. Practitioners of herbal medicine believe that an active ingredient can lose its impact or become less safe if used in isolation from the rest of the plant. For instance, salicylic acid is found in the plant meadowsweet and is used to make aspirin. Aspirin can cause the lining of the stomach to bleed, but meadowsweet naturally contains other compounds that prevent irritation from salicylic acid. According to herbal medicine practitioners, the effect of the whole plant is greater than its parts. Critics argue that the nature of herbal medicine makes it difficult to give a measured dose of an active ingredient. Herbal medicine aims to return the body to a state of natural balance so that it can heal itself. Different herbs act on different systems of the body.[3,4]

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Some herbs that are commonly used in herbal medicine, and their traditional uses, include:

- Echinacea – to stimulate the immune system and aid the body in fighting infection. Used to treat ailments such as boils, fever and herpes.
- Dong quai (dang gui) – used for gynaecological complaints such as premenstrual tension, menopause symptoms and period pain. Some studies indicate that dong quai can lower blood pressure.
- Garlic – used to reduce the risk of heart disease by lowering levels of blood fats and cholesterol (a type of blood fat). The antibiotic and antiviral properties of garlic mean that it is also used to fight colds, sinusitis and other respiratory infections.
- Ginger – many studies have shown ginger to be useful in treating nausea, including motion sickness and morning sickness.
- Ginkgo biloba – commonly used to treat poor blood circulation and tinnitus (ringing in the ears).
- Ginseng – generally used to treat fatigue, for example during recovery from illness. It is also used to reduce blood pressure and cholesterol levels, however overuse of ginseng has been associated with raised blood pressure.
- Hypericum perforatum – commonly known as St John's Wort. Studies have suggested that St John's Wort is just as effective as some pharmaceutical antidepressants in treating mild to moderate depression. It is also used for anxiety and insomnia. However, St John's Wort can interact with a number of prescription medications, including the oral contraceptive pill, and stop them from working properly.[5,6]

Herbal medicines can be mistakenly thought to be completely safe because they are 'natural' products. This is not always correct. Herbal medicines may produce negative effects that can range from mild to severe, including:

- allergic reactions and rashes
- asthma
- headaches
- nausea
- vomiting
- diarrhoea.

Herbal medications and supplements may interact in harmful ways with over-the-counter or prescription medicines you are taking. Taking herbal supplements may increase or decrease the effectiveness of other drugs you are taking or may increase the risk of negative side effects. For example, St John's Wort mostly decreases the effectiveness of other medicines but increases the effects of antidepressants. If you are considering taking herbal medicines, it is always a good idea to talk to your doctor about possible side effects and interactions with other medications you are taking.[7,8]

II.DISCUSSION

Not all herbal medicines that are sold are safe. Always purchase from a source that stocks products from a reputable manufacturer or supplier, such as health food stores, supermarkets, pharmacies or from a reputable practitioner. Be careful about purchasing herbal medicines over the internet. Unregulated herbal medicines from overseas may not be manufactured to the same quality and standard as regulated medicines. In some cases, products purchased online have been found to have dangerous levels of lead, mercury or arsenic, which can cause serious health problems. Herbal medicines made in Australia are subject to regulations. Consult with your pharmacist about the safety and effectiveness of the herbal medicine or supplements you are thinking of buying. If you are considering taking herbal medicine, it is recommended that you:

- Never stop taking prescribed medications without consulting your doctor.
- Always tell your doctor if you are planning to start a course of herbal medicine for your condition.

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- Seek advice from your qualified health practitioner, your doctor or your pharmacist about the herbal medicine's safety, quality and effectiveness.
- Always purchase products from a reputable source. Be cautious about buying herbal medicines or supplements manufactured overseas.
- Take all herbal medicines strictly as prescribed and consult your health practitioner immediately if you experience any side effects.[9,10]

The history of herbalism is closely tied with the [history of medicine](#) from prehistoric times up until the development of the [germ theory of disease](#) in the 19th century. Modern medicine from the 19th century to today has been based on [evidence](#) gathered using the [scientific method](#). Evidence-based use of [pharmaceutical drugs](#), often derived from [medicinal plants](#), has largely replaced herbal treatments in modern health care. However, many people continue to employ various forms of [traditional](#) or [alternative medicine](#). These systems often have a significant herbal component. The history of [herbalism](#) also overlaps with [food history](#), as many of the herbs and spices historically used by humans to season food yield useful medicinal compounds, and use of spices with [antimicrobial](#) activity in cooking is part of an ancient response to the threat of food-borne pathogens. The use of plants as medicines predates written human history. [Archaeological](#) evidence indicates that humans were using medicinal plants during the [Paleolithic](#), approximately 60,000 years ago. (Furthermore, other non-human [primates](#) are also known to ingest medicinal plants to treat illness) Plant samples gathered from prehistoric burial sites have been thought to support the claim that Paleolithic people had knowledge of herbal medicine. For instance, a 60,000-year-old Neanderthal burial site, "[Shanidar IV](#)", in northern Iraq has yielded large amounts of pollen from 8 plant species, 7 of which are used now as herbal remedies. More recently [Paul B. Pettitt](#) has written that "A recent examination of the microfauna from the strata into which the grave was cut suggests that the pollen was deposited by the burrowing rodent *Meriones tericus*, which is common in the Shanidar microfauna and whose burrowing activity can be observed today". Medicinal herbs were found in the personal effects of [Ötzi the Iceman](#), whose body was frozen in the [Ötztal Alps](#) for more than 5,000 years. These herbs appear to have been used to treat the parasites found in his intestines. Traditional herbalism has been regarded as a method of alternative medicine in the United States since the [Flexner Report](#) of 1910 led to the closing of the [eclectic medical schools](#) where botanical medicine was exclusively practiced. In China, [Mao Zedong](#) reintroduced [Traditional Chinese Medicine](#), which relied heavily on herbalism, into the health care system in 1949. Since then, schools have been training thousands of practitioners – including Americans – in the basics of Chinese medicines to be used in hospitals. While Britain in the 1930s was experiencing turbulence over the practice of herbalism, in the United States, government regulation began to prohibit the practice. "The World Health Organization estimated that 80% of people worldwide rely on herbal medicines for some part of their primary health care. In Germany, about 600 to 700 plant based medicines are available and are prescribed by some 70% of German physicians.

The practice of prescribing treatments and cures to patients requires a legal medical license in the United States of America, and the licensing of these professions occurs on a state level. "There is currently no licensing or certification for herbalists in any state that precludes the rights of anyone to use, dispense, or recommend herbs." Traditional medicine is a complex network of interaction of both ideas and practices, the study of which requires a multidisciplinary approach. Many alternative physicians in the 21st century incorporate herbalism in traditional medicine due to the diverse abilities plants have and their low number of side effects.[11,12]

III.RESULTS

Herbal medicine (also herbalism) is the study of pharmacognosy and the use of medicinal plants, which are a basis of traditional medicine. With worldwide research into pharmacology, some herbal medicines have been translated into modern remedies, such as the anti-malarial group of drugs called artemisinin isolated from *Artemisia annua*, a herb that was known in Chinese medicine to treat fever. There is limited scientific evidence for the safety and efficacy of plants used in 21st century herbalism, which generally does not provide standards for purity or dosage. The scope of herbal medicine commonly includes fungal and bee products, as well as minerals, shells and certain animal parts. Herbal medicine is also called phytomedicine or phytotherapy. Paraherbalism describes alternative and pseudoscientific practices of using unrefined plant or animal extracts as unproven medicines or health-promoting agents. Paraherbalism relies on the belief that preserving various substances from a given source with less processing is safer or more effective than manufactured products, a concept for which there is no evidence. There are many forms in which herbs

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can be administered, the most common of which is a liquid consumed as a herbal tea or a (possibly diluted) plant extract. Herbal teas, or tisanes, are the resultant liquid of extracting herbs into water, though they are made in a few different ways. Infusions are hot water extracts of herbs, such as chamomile or mint, through steeping.[13,14] Decoctions are the long-term boiled extracts, usually of harder substances like roots or bark. Maceration is the cold infusion of plants with high mucilage-content, such as sage or thyme. To make macerates, 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. Tinctures are alcoholic extracts of herbs, which are generally stronger than herbal teas. Tinctures are usually obtained by combining pure ethanol (or a mixture of pure ethanol with water) with the herb. A completed tincture has an ethanol percentage of at least 25% (sometimes up to 90%). Non-alcoholic tinctures can be made with glycerin but it is believed to be less absorbed by the body than alcohol based tinctures and has a shorter shelf life. Herbal wine and elixirs are alcoholic extract of herbs, usually with an ethanol percentage of 12–38%. Extracts include liquid extracts, dry extracts, and nebulisates.[23,24] Liquid extracts are liquids with a lower ethanol percentage than tinctures. They are usually made by vacuum distilling tinctures. Dry extracts are extracts of plant material that are evaporated into a dry mass. They can then be further refined to a capsule or tablet. The exact composition of an herbal product is influenced by the method of extraction. A tea 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. Many herbs are applied topically to the skin in a variety of forms. Essential oil extracts can be applied to the skin, usually diluted in a carrier oil. Many essential oils can burn the skin or are simply too high dose used straight; diluting them in olive oil or another food grade oil such as almond oil can allow these to be used safely as a topical. Salves, oils, balms, creams, and lotions are other forms of topical delivery mechanisms. 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. Many massage oils, antibacterial salves, and wound healing compounds are made this way.[15,16]

IV. CONCLUSIONS

Paraherbalism is the pseudoscientific use of extracts of plant or animal origin as supposed medicines or health-promoting agents. Phytotherapy differs from plant-derived medicines in standard pharmacology because it does not isolate and standardize the compounds from a given plant believed to be biologically active. It relies on the false belief that preserving the complexity of substances from a given plant with less processing is safer and potentially more effective, for which there is no evidence either condition applies. Phytochemical researcher Varro Eugene Tyler described paraherbalism as "faulty or inferior herbalism based on pseudoscience", using scientific terminology but lacking scientific evidence for safety and efficacy. Tyler listed ten fallacies that distinguished herbalism from paraherbalism, including claims that there is a conspiracy to suppress safe and effective herbs, herbs can not cause harm, that whole herbs are more effective than molecules[21,22] isolated from the plants, herbs are superior to drugs, the doctrine of signatures (the belief that the shape of the plant indicates its function) is valid, dilution of substances increases their potency (a doctrine of the pseudoscience of homeopathy), astrological alignments are significant, animal testing is not appropriate to indicate human effects, anecdotal evidence is an effective means of proving a substance works and herbs were created by God to cure disease. Tyler suggests that none of these beliefs have any basis in fact. In India, Ayurvedic medicine has quite complex formulas with 30 or more ingredients, including a sizable number of ingredients that have undergone "alchemical processing", chosen to balance dosha. In Ladakh, Lahul-Spiti, and Tibet,[17,18] the Tibetan Medical System is prevalent, also called the "Amichi Medical System". Over 337 species of medicinal plants have been documented. Those are used by Amchis, the practitioners of this medical system. The Indian book, Vedas, mentions treatment of diseases with plants.[19,20]

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