



REVIEW ARTICLE

A Review on Ayurveda: Science of life

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ABSTRACT

Herbs are often administered in combination with therapeutic drugs, raising the potential of herb-drug interactions. An extensive review of the literature identified reported herb-drug interactions with clinical significance, many of which are from case reports and limited clinical observations.

Cases have been published reporting enhanced anticoagulation and bleeding when patients on long-term warfarin therapy also took *Salvia miltiorrhiza* (danshen). *Allium sativum* (garlic) decreased the area under the plasma concentration-time curve (AUC) and maximum plasma concentration of saquinavir, but not ritonavir and paracetamol (acetaminophen), in volunteers. *A. sativum* increased the clotting time and international normalised ratio of warfarin and caused hypoglycaemia when taken with chlorpropamide. *Ginkgo biloba* (ginkgo) caused bleeding when combined with warfarin or aspirin (acetylsalicylic acid), raised blood pressure when combined with a thiazide diuretic and even caused coma when combined with trazodone in patients. *Panax ginseng* (ginseng) reduced the blood concentrations of alcohol (ethanol) and warfarin, and induced mania when used concomitantly with phenelzine, but ginseng increased the efficacy of influenza vaccination. *Scutellaria baicalensis* (huangqin) ameliorated irinotecan-induced gastrointestinal toxicity in cancer patients.

Keywords: Introduction, Ayurveda, System of Medicines, Scope, Conclusion

Introduction

Ayurveda (Devanāgarī, the 'science of life') is a system of traditional medicine native to India, and practiced in other parts of the world as a form of alternative medicine.^[10] In Sanskrit, the word Ayurveda comprises the words *āyus*, meaning 'life' and *veda*, meaning 'science'. Evolving throughout its history, Ayurveda remains an influential system of medicine in South Asia. The earliest literature of Ayurveda appeared during the Vedic period in India. The *Sushruta Samhita* and the *Charaka Samhita* were influential works on traditional medicine during this era. Ayurvedic practitioners also identified a number of medicinal preparations and surgical procedures for curing various ailments and diseases.

Ayurveda has become an alternative form of medicine in the western world, where patents for its medicine have been passed, and the intellectual property rights contested by Western and Indian institutions. Ayurveda is considered to be a form of complementary and alternative medicine (CAM) within the United States of America, where several of its methods—such as herbs, massage, and Yoga as exercise or alternative medicine—are applied on their own as a form of CAM treatment.

Ayurveda believes in 'five great elements' (Devanāgarī: ; earth, water, fire, air and space) forming the universe, including the human body. Blood, flesh, fat, bone, marrow, chyle, and semen are believed to be the seven primary constituent elements (Devanāgarī:) of the body. Ayurveda stresses a balance of three substances: wind/spirit/air, phlegm, and bile, each representing divine forces. According to Ayurvedic beliefs, the doctrine of these three *Doshas* (Devanāgarī:)—*vata* (wind/spirit/air), *pitta* (bile) and *kapha* (phlegm)—is important. Traditional beliefs hold that humans possess a unique constellation of *Doshas*. In Ayurveda, the human body has 20 *Guna* (Devanāgarī, meaning quality). Surgery and surgical instruments are employed. It is believed that building a healthy metabolic system, attaining good digestion, and proper excretion leads to vitality. Ayurveda also focuses on exercise, yoga, meditation, and massage.

The concept of *Panchakarma* (Devanāgarī:) is believed to eliminate toxic elements from the body. Eight disciplines of Ayurveda treatment, called *Ashtanga* (Devanāgarī:), are given below:

- Surgery (*Shalya-chikitsa*).
- Treatment of diseases above the clavicle (*Salakyam*).
- Internal medicine (*Kaya-chikitsa*).

- Demonic possession (*Bhuta vidya*): Ayurveda believes in demonic intervention and—as a form of traditional medicine—identifies a number of ways to counter the supposed effect of these interferences. *Bhuta vidya* has been called psychiatry.
- Paediatrics (*Kanmarabhrtiyam*).
- Toxicology (*Agadatantram*).
- Prevention and building immunity (*rasayanam*).
- Aphrodisiacs (*Vajikaranam*).

Herbal drugs

Herbs

Herbs include crude plant material such as leaves, flowers, fruit, seed, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered.

Herbal materials

Herbal materials include, in addition to herbs, fresh juices, gums, fixed oils, essential oils, resins and dry powders of herbs. In some countries, these materials may be processed by various local procedures, such as steaming, roasting, or stirbaking with honey, alcoholic beverages or other materials.

Herbal preparations

Herbal preparations are the basis for finished herbal products and may include comminuted or powdered herbal materials, or extracts, tinctures and fatty oils of herbal materials. They are produced by extraction,

fractionation, purification, concentration, or other physical or biological processes. They also include preparations made by steeping or heating herbal materials in alcoholic beverages and/or honey, or in other materials.

Use of medicinal plants can be as informal as, for example, culinary use or consumption of an herbal tea or supplement, although the sale of some herbs considered dangerous is often restricted to the public. Sometimes such herbs are provided to professional herbalists by specialist companies. Many herbalists, both professional and amateur, often grow or "wildcraft" their own herbs.

Some researchers trained in both western and traditional Chinese medicine have attempted to deconstruct ancient medical texts in the light of modern science. One idea is that the yin-yang balance, at least with regard to herbs, corresponds to the pro-oxidant and anti-oxidant balance. This interpretation is supported by several investigations of the ORAC ratings of various yin and yang herbs.

Eclectic medicine came out of the vitalist tradition, similar to physiomedicalism and bridged the European and Native American traditions. Cherokee medicine tends to divide herbs into foods, medicines and toxins and to use seven plants in the treatment of disease,

which is defined with both spiritual and physiological aspects, according to Cherokee herbalist David Winston.

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 "Vata", "Pitta" or "Kapha."

In addition there are more modern theories of herbal combination like William LeSassier's triune formula which combined Pythagorean imagery with Chinese medicine ideas and resulted in 9 herb formulas which supplemented, drained or neutrally nourished the main organ systems affected and three associated systems. His system has been taught to thousands of influential American herbalists through his own apprenticeship programs during his lifetime, the William LeSassier Archive^[64] and the David Winston Center for Herbal Studies

Many traditional African remedies have performed well in initial laboratory tests to ensure they are not toxic and in tests on animals. Gawo, a herb used in traditional treatments, has been tested in rats by researchers from Nigeria's University of Jos and the National Institute 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

Conclusion

Herbs are often administered in combination with therapeutic drugs, raising the potential of herb-drug interactions. An extensive review of the literature identified reported herb-drug interactions with clinical significance, many of which are from case reports and limited clinical observations.

Cases have been published reporting enhanced anticoagulation and bleeding when patients on long-term warfarin therapy also took *Salvia miltiorrhiza* (danshen). *Allium sativum* (garlic) decreased the area under the plasma concentration-time curve (AUC) and maximum plasma concentration of saquinavir, but not ritonavir and paracetamol (acetaminophen), in volunteers. *A. sativum* increased the clotting time and international normalised ratio of warfarin and caused hypoglycaemia when taken with chlorpropamide. *Ginkgo biloba* (ginkgo) caused bleeding when combined with warfarin or aspirin (acetylsalicylic acid), raised blood pressure when combined with a thiazide

diuretic and even caused coma when combined with trazodone in patients. Panax ginseng (ginseng) reduced the blood concentrations of alcohol (ethanol) and warfarin, and induced mania when used concomitantly with phenelzine, but ginseng increased the efficacy of influenza vaccination. Scutellaria baicalensis (huangqin) ameliorated irinotecan-induced gastrointestinal toxicity in cancer patients.

Piper methysticum (kava) increased the 'off' periods in patients with parkinsonism taking levodopa and induced a semicomatose state when given concomitantly with alprazolam. Kava enhanced the hypnotic effect of alcohol in mice, but this was not observed in humans. Silybum marianum (milk thistle) decreased the trough concentrations of indinavir in humans. Piperine from black (Piper nigrum Linn) and long (P. longum Linn) peppers increased the AUC of phenytoin, propranolol and theophylline in healthy volunteers and plasma concentrations of rifampicin (rifampin) in patients with pulmonary tuberculosis. Eleutherococcus senticosus (Siberian ginseng) increased the serum concentration of digoxin, but did not alter the pharmacokinetics of dextromethorphan and alprazolam in humans. Hypericum perforatum (hypericum; St John's wort) decreased the blood concentrations of

ciclosporin (cyclosporin), midazolam, tacrolimus, amitriptyline, digoxin, indinavir, warfarin, phenprocoumon and theophylline, but did not alter the pharmacokinetics of carbamazepine, pravastatin, mycophenolate mofetil and dextromethorphan. Cases have been reported where decreased ciclosporin concentrations led to organ rejection. Hypericum also caused breakthrough bleeding and unplanned pregnancies when used concomitantly with oral contraceptives. It also caused serotonin syndrome when used in combination with selective serotonin reuptake inhibitors (e.g. sertraline and paroxetine).

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