

Topics of Discussion

- I will cover four general topics of discussion on Herbal Pharmacology. I will primarily focus on the
- 1) Historical aspect of Chinese Herbology
- 2) Biochemical properties and tastes of medicinal substances with cautions and contraindications
- 3) Herbal categories
- 4) Chinese Formulas

Historical Aspect of Chinese Herbology

- There are several important as well as ancient manuscripts which have been used throughout the past several milleniums that need to be mentioned. One of them which is considered one of the oldest major Chinese medical texts is known as the Huang Di Nei Jing or Yellow Emperor's Inner Classic or simply Inner Classic. This text was compiled by unknown authors between 200 B.C and 100 A.D. and is divided into 2 sections: the Su Wen or Basic Questions and the Ling Shu or Miraculous Pivot. This book serves as the foundation for the theoretical and philosophical aspect of traditional Chinese Medicine. In the Inner Classic the theories of elemental, humoral (meaning one of the elemental body fluids that were the basis of the physiologic and pathologic teachings of the hippocratic school: blood, yellow bile, black bile and phlegm), and energetic forces are the basis for understanding what is observed clinically. However from an herbal medicine perspective, the Inner Classic is not an important document simply because there are only 12 prescriptions noted and a total of 28 substances. Around 2000 B.C., there is scattered evidence that Chinese medicine was different from the classic book which is still used today. In fact the primary health care providers were called shaman or Wu and many of them were women. During that period of time, disease and treating everyday ailments was viewed as the manifestation of malevolent spirits, ghosts and demons which had to be repelled by incantations, rituals, spells and herbal prescriptions. During the Shang dynasty excavated records of divination in the form of carvings on tortoise shells and animal bones (oracle bones) show references to headaches, eye ailments, parasites and many other illnesses. At that time medicinal alcohol's and boiled medicinal compounds were already in use for treating illness.

- One of the largest and most important manuscripts discovered and written on silk appears to have been composed before the end of the third century BC. It is called the Wu Shi Er Bing Fang or the “Prescriptions for fifty two ailments”. This manuscript is primarily a pharmacological work and contains over 250 medicinal substances, mainly herbaceous and woody substances. There are also grains, legumes, fruits, vegetables, minerals, animal parts as well as certain substances derived from the human body, i.e., like using a pregnant women’s placenta.
- During the later part of the Han dynasty, another manuscript called the “Shen nong ben cao jing” also known as the Divine Husbandman’s Classic of the Materia Medica, as well as the “Shang Han lun” or Discussion of Cold-induced Disorders became the source of all prescription manuals. The Classic of the Materia Medica was the first book to focus on individual herbs. The Shen nong for short contains 252 botanical entries, 45 mineral entries and 67 zoological entries.
- There was another major materia medica during the Tang dynasty in 659 AD called the “Xin xiu ben cao” or the Newly Revised Materia Medica which became the official pharmacopoeia. It was the first illustrated materia medica and contained 844 entries. And in the Song dynasty 960-1279 AD another major materia medica called “Zheng lei ben cao” or Materia Medica Arranged According To Pattern contained 1,558 substances. There was a coroner during the Song dynasty who wrote “removing injustices” contained 4 articles recording human anatomy, coronary methods, emergency treatments, detoxification and other information. One of China’s most celebrated herbal books printed in 1596 AD is the ‘Ben cao gang mu’ or Grand Materia Medica and includes 1,892 substances from plants, animals and minerals and has been translated into numerous languages.

Biochemical Properties and Tastes of Medicinal Substances

- When we talk about biochemical properties of medicinal substances, we are referring to the chemistry of living organisms and the chemical, molecular and physical changes that occur when ingesting medicinal substances. Medicinal substances in their whole form contain active biochemical ingredients that give the

herb or medicinal substance its therapeutic properties. When referring to biochemical properties in Chinese medicine, not only are chemical, molecular and physical changes important but other properties are incorporated and not commonly thought of from a western perspective. The term “four qi” is discussed and suggests temperature characteristic. There are presently 5 major designations used to describe this aspect: hot, cold, warm, cool and neutral. The other primary property of medicinal substances in Chinese Medicine is taste or wei. There are 5 tastes; acrid or pungent or even spicy called “xin”, sweet or “gan”, bitter or “ku”, sour or “suan” and salty or “xian”. Substances that have none of these tastes are said to be bland or “dan”. This concept can be related to the yin and yang theory, for example the temperature characteristics are said to be yang, whereas the tastes are yin. Another taste attributed to certain herbs is astringent or “se” and refers not only to the taste of the substance, but also to its ability to prevent or stop leakage of fluids in the body. Again referring to the concept of the yin and yang, acrid and sweet tastes scatter and are yang in nature, sour and bitter substances drain and are yin whereas bland taste seeps and drains and is yang. According to Chinese medicine, the taste of a medicinal substance partly determines its therapeutic function, as an example, sweet substances are said to tonify, harmonize and have a moistening effect. Acrid substances disperse and move, bitter substances drain and dry, sour substances are astringent and prevent or reverse the abnormal leakage of fluids and energy and salty substances purge and soften. Bland substances can leech out dampness and promote urination.

- In the “Su wen” or basic questions, there is discussion of the relationship between the tastes and the yin organs of the body. For example, sourness enters the liver, acidity enters the lungs, bitterness enters the heart, saltiness the kidneys and sweetness enters the spleen. Another way of grouping information about medicinal substances is to identify which channel or meridian the substance enters. Dr Zhang Yuan-Su during the Song dynasty (960-1279 AD) makes reference to the relationship between a certain herb or substance is said to have a certain action because of the channel it enters. “The method of appropriately using medicines in accordance with the clinical pattern of the patient entails determining substances with the correct qi, taste, yin and

yang, and thick and thin properties as well as the pathogenic factor involved and the channel it has entered.” A few examples of some herbs would be; huang lian (*Rhizoma Coptidis*) enters the heart, rou gui (*Cortex Cinnamomi Cassiae*) AKA cinnamon enters the kidneys. Another example cong bai (*Bulbus Allii Fistulosi*) or more popularly known as scallion or spring onion, QUESTION can anyone guess what channel it would enter? It enters the lungs!

- Taste describes perception of the herb in the mouth, while temperature describes sensation in the stomach or on the skin. Now let me give you an example of a substance with its biochemical properties, temperature and tastes. Take Ma Huang for example; its pharmaceutical name is *Herba Ephedrae* and its biochemical constituents are ephedrine, pseudoephedrine, 1-N-methylephedrine, ephedine, 1-norephedrine, d-N-pseudomethylephedrine, benzyl-methylamine, and 1-alpha-d-terpineol. The temperature of ma huang is warm and its taste is acrid, and slightly bitter. Many of the drugs used in mainstream medicine are derived from herbs originally used in traditional or folk medicine, such as digoxin or ephedrine or penicillin is all derivatives of plants and fungi. For example: one of ma huang's biochemical constituents is pseudoephedrine and has anyone heard of or taken an over-the-counter cold remedy called SUDAFED? Well the pharmaceutical company that makes SUDAFED used the ma huang plant and extracted one of its chemical constituents called pseudoephedrine and made it into a concentrated form to make SUDAFED.

There are 3 major types of **contraindications or prohibitions** in using these substances. There are prohibited combinations, prohibitions during pregnancy, and dietary incompatibilities. Prohibited combinations are from certain combinations of herbs that should be avoided because they either reduce each other's effectiveness or lead to toxicity or undesirable side effects. According to the “*Shu ben cao*”, there are 60 cases of mutual antagonism and eighteen cases of mutual incompatibilities. “*Ding xiang*” (*Flos Caryophylli*) antagonizes “*yu jin*” (*Tuber Curcumae*). “*Gan cao*” (*Radix Glycyrrhizae Uralensis*) is incompatible with “*gan sui, da ji, yuan hua, and hai zao*”. There are some medicinal substances that can cause problems during pregnancy to the fetus or even lead to miscarriage. Substances that invigorate the blood and dispel stasis or those medicinal substances that are intensely hot are prescribed

with the utmost caution and only for carefully selected patients. Dietary incompatibilities fall into 2 categories. Patients who are taking certain herbs i.e. like “sheng di huang” (Radix Rhemanniae) should avoid ingesting foods like onions, garlic, and radishes. A general note should be added that when taking medicinal substances, patients should avoid raw, cold greasy or other relatively hard-to-digest foods as they can upset the digestive tract and disturb the effects of the substances.

Herbal Categories

- There are 18 herbal categories, I am only going to briefly comment on them since theory needs to be further explained before you will grasp the concrete understanding of each category.
- **Herbs that release the exterior:** these herbs are used for the superficial levels of the body as when there are pathogenic factors involved. Wind-heat, wind-cold, wind-dampness and summerheat. In western medicine these would be classified as viral infections, i.e., the common cold or influenza virus, or a bacterial infection in the lungs. Classic symptoms would be chills, fevers, stiff neck and general muscle aches, with or without sweat. An example of exterior releasing herb would be gui zhi (Ramulus Cinnamomi Cassiae) or cinnamon twig or cong bai (Bulbus Allii Fistulosi), spring onion
- **Herbs that clear heat:** this section is related to febrile disorders or any condition that present with heat signs such as dry throat, red face red eyes, dry stool, dark and scanty urine, yellow tongue coating, rapid pulse and a sensation of warmth in the soles of feet, palms of the hand, and sternum. There is exterior heat and interior heat. Herbs described in this chapter are used for treating interior heat and are cold in nature and have antipyretic effects (reducing fevers), anti-inflammatory, and antimicrobial effects. An example of a clear heat herb is shi gao (Gypsum) calcium sulfate
- **Downward draining herbs:** this category either stimulates or lubricates the gastrointestinal tract to facilitate the expulsion of stool and are divided into 3 classes: purgatives, which are mostly bitter and cold in nature and have strong clearing heat abilities for heat related constipation. **Moist laxatives** are often nuts or seeds and lubricate the intestines and are mild in nature. They are mostly prescribed for the debilitated, elderly or people of weak constitution or weakened from a febrile disease. **Harsh expellants** are very

strong cathartics that induce diarrhea. Some are also diuretics and can be used in treatment of pleurisy (a serous membrane that envelopes the lungs, inflammation of the pleura) and ascites (accumulation of serous fluid in the peritoneal cavity). Only used in extreme or severe cases

- **Herbs that drain dampness:** refers to accumulation of fluids in the body, (i.e., edema and congested fluids primarily of the respiratory and digestive systems.) and dampness occurring from heat together as in painful urinary dysfunction, damp warm-febrile diseases, damp sores and jaundice. Many are essentially diuretics.
- **Herbs that dispel wind-dampness:** from the muscles, sinews, joints and bones. They alleviate painful obstruction and invigorate the connecting channels. The principal condition for which they are indicated is painful obstruction caused by wind, dampness and cold as well as heat and manifest as pain and numbness in the joints and muscles. The herbs in this category have analgesic, anti-inflammatory, antipyretic, and circulation-promoting properties.
- **Herbs that transform phlegm and stop coughing** refers to pathological accumulation of thick fluid in the respiratory and digestive tracts as well as muscles, integument (enveloping membrane of the body) and other body tissues. Phlegm is often implicated in diverse disorders as epilepsy, convulsions, scrofula (historic term for cervical tuberculosis, any glandular swelling), goiter (chronic enlargement of thyroid) and some chronic skin problems
- **Aromatic herbs that transform dampness** refers to the damp pathogenic influences which causes stagnation in the middle burner which is spleen and stomach. Primary symptoms are a feeling of distention and fullness in the abdomen, nausea, vomiting or the spitting up of sour fluids, absence of thirst, loss of appetite, diarrhea with difficulty defecating, headaches, or body aches. Modern biomedicine referring to food poisoning or acute gastroenteritis (inflammation of the mucous membrane of both stomach and intestines)
- **Herbs that relieve food stagnation** are substances that have the ability to reduce, dissolve or digest food stagnation in the digestive tract. There are hot and cold types. Modern biomedical perspectives for the herbs in this group stimulate an increase in

gastrointestinal secretions, possess enzymatic functions and optimize peristalsis for better digestion.

- **Herbs that regulate the Qi** have 2 primary disorders: deficiency and stagnation. Stagnation is discussed in this category and there are 3 major types of stagnant qi differentiated according to the organs involved: stagnant spleen and stomach qi, constrained liver qi and stagnant lung qi.
- There are 3 general categories of blood pathology in Chinese medicine: bleeding, blood stasis and blood deficiency. **Herbs that regulate the blood** are divided into 2 categories of stop bleeding and invigorate the blood. There is a 3rd one but it goes into the tonify category. Most commonly used in this category are the vomiting blood, nosebleed, coughing with blood, blood in the stool or urine, excessive menstruation, uterine bleeding, or bleeding from trauma
- **Herbs that warm the interior and expel cold** are used in treating interior cold, which can either be internally-generated or the result of an invasion of the cold pathogenic influence into the organs. The symptoms associated with this pattern are from patterns of deficiency such as cold extremities, fear of cold, pallid complexion, lack of thirst, or sometimes the desire to drink hot liquids, loose stools, and a thin white tongue coating and slow pulse. The patient can present with nausea, vomiting, belching, diarrhea, and cold and painful sensations in the chest and abdomen. Biomedicine patterns would be acute gastritis or gastroenteritis (inflammation of the mucous membrane of both stomach and intestine)
- **Tonifying herbs** are those herbs that strengthen or supplement an area or process of the body that is insufficient or weakened. They also strengthen the body's defenses against disease. Clinically they are used in combination with herbs that expel external pathogenic influences and when the patient presents with a weak constitution. Tonics are used in treating patterns of deficiency of the qi, blood, yang, and yin. A classic tonify qi herb is Ren Shen (Radix Ginseng). An herb for tonifying the yang of the body is a substance called Lu Rong or better known as the velvet of young male deer antler.
- **Herbs that stabilize and bind** are used primarily for treating disorders in which bodily substances are discharged abnormally or for structures that slip from their proper position. Disorders

would include diarrhea, excessive urination, excessive sweating and prolapsed organs of the rectum or uterus or even bladder. From a biomedical perspective, these disorders usually arise from either a derangement in the autonomic nervous system or a weakening in the elasticity of smooth muscle fibers. Stabilizing and binding herbs only treat the manifestation and in order to be useful must be used concurrently with other medicinal substances that treat the root or cause of the condition or problem. Wu Wei Zi or (Fructus Schisandrae Chinensis) or schisandra fruit is used to stop chronic diarrhea, or chronic cough with wheezing, and also inhibits sweating such as from spontaneous sweating or night sweats.

- **Substances that calm the spirit** are used primarily in treating disturbances of the spirit (shen), which lead to such problems as irritability, insomnia, palpitations with anxiety, and even some forms of insanity or mental disorders. In Chinese medicine, the spirit is said to reside in the heart and many of the substances in this category enter the heart channel. In addition, these substances also affect the liver, called hun, which is where the soul resides and many disorders of this organ often manifest in similar symptoms. There are 2 major categories of substances that calm spirit: those that anchor, settle, and calm the spirit and those substances that nourish the heart to calm the spirit. One substance that anchors, settles and calms the spirit is Long Gu or (Os Draconis), better known as dragon bone, usually fossilized vertebrae and bones of the extremities of mammals. An herb to nourish the heart presenting with palpitations, anxiety, or insomnia due to heart blood or liver yin deficiency is, Suan Zao Ren or (Semen Zizyphi Spinosae) also known as sour jujube seed.
- **Aromatic substances that open the orifices**, are used to open up the sensory orifices and awaken the spirit. This is the type of patient who presents with delirium or comatose, because Chinese medicine states that the spirit is locked up from pathogenic influences covering or enveloping the sensory orifices. Patients may also present with a type of wind stroke, which can manifest as coma, lock jaw, clenched fists, rigid limbs. In Chinese medicine these substances are also used for treating turbid phlegm misting the mind or heart and may include seizures. From a biomedical perspective, these herbs stimulate

the central nervous system and have a tranquilizing effect and can treat irritability and stop spazms.

- **Substances that extinguish wind and stop tremors**, is in reference to wind. Wind has both exterior and interior manifestations. An example of internal wind manifestations would include headaches, dizziness, blurred vision, tinnitus, and in severe cases irritability, vomiting, palpitations with anxiety and muscle twitches. The biomedical perspective would be patients suffering from hypertension or atherosclerosis, hemiplegia, (paralysis of one side of the body) aphasia (impaired or absent comprehension or speech).
- **Herbs that expel parasites** are used primarily for treating intestinal parasites such as roundworms, tapeworms and hookworms. Common symptoms are para-umbilical pain, vomiting, change in appetite, pruritis ani (anal itching), or itching of the nose or ears. Laboratory tests would reveal which parasitic organism is positive and then appropriate herbs would be administered.
- **Substances for external application**, focus on localized problems such as bleeding, inflammation, swelling, pain and pustulous wounds. Some are used to promote healing of skin lesions, others to stop itching. A substance used for example in someone who has a nonulcerated sore or abscess of the mouth, gum or throat could use Chan Su (Secretio Bufonis) or toad venom and works as a local anesthetic similar to that of cocaine and also has anti-inflammatory effects and decreased capillary permeability locally. Liu Huang or (sulphur) is used often to kill parasites and stop itching.
- **FORMULAS**
- **Release the exterior: Yin Qiao San** this formula is for a wind heat condition for early stage warm febrile disease, with fever, with or out chills, cough sore throat
- **Clear heat: Long Dan Xie Gan Tang** drains fire from the liver and gallbladder and clears damp heat. Symptoms are pain in the hypochondria region, headache, dizziness, red and sore eyes, hearing loss, swelling in ears, a bitter taste in mouth, irritability, short temper. Also for painful urination, with heat sensation in the urethra, swollen and itching genitalia or foul smelling discharge. HSV I & II, acute glaucoma, cystitis, PID, gallstones, etc.

- **Da Cheng Qi Tang:** drain downward for severe constipation
- **Si Ni San: Harmonizing** for cold fingers and toes with irritability and fullness in the chest and epigastrium, may have abdominal pain with diarrhea. Heat stagnated on the interior and not reaching the extremities
- **Treat dryness**
- **Expel dampness: Wu Ling San** with headache, fever, irritability, thirst with immediate vomiting after, urinary difficulty, general edema and other symptoms. This can be used for acute nephritis, chronic renal failure, congestive heart failure, ascites (accumulation of fluid in the abdomen) from liver cirrhosis, etc.
- **Warm the interior cold: Si Ni Tang** different from the other formula symptoms of extremely cold extremities, aversion to cold, sleeping with knees drawn up, lethargy, desire to sleep, vomiting, diarrhea with undigested food particles, abdominal pain
- **Tonify: Si Jun Zi Tang** classic formula to tonify the whole qi and strengthen the spleen usually from improper eating habits, excessive deliberation or overworking.
- **Regulate the Qi: Yue Ju Wan** can be used for peptic ulcers, chronic gastritis, infectious hepatitis, cholecystitis
- **Invigorate the blood: Xue Fu Zhu Yu Tang** can be used for treating coronary artery dz, hypertension, intercostal neuralgia (pain in the chest wall along the nerve pathway), etc.
- **Stop bleeding: Jiao Ai Tang** for uterine bleeding, threatened miscarriage, post partum bleeding, peptic ulcer bleeding, bleeding hemorrhoids
- **Stabilize and bind: Yu Ping Feng San** can be used for recurring colds, chronic bronchitis, allergic rhinitis, lowered immune resistance
- **Calm spirit: Tian Wang Bu Xin Dang** heart disease, menopausal, neurasthenia (wired but tired feeling), with symptoms as inability to think or concentrate for even short periods of time, forgetfulness, night sweats, etc.
- **Expel wind: Xiao Feng San** for urticaria, eczema, psoriasis, contact dermatitis
- **Formulas that open orifices**
- **Treat phlegm: Wen Dan Tang** gallbladder and stomach disharmony for gastritis, peptic ulcer, neurosis, early stage of schizophrenia, Meniere's dz

- **Reduce food stagnation: Bao He Wan** from excessive food consumption as in too much turkey dinner during thanksgiving, or excessive alcohol, meat, and fatty foods
- **Expel parasites formulas**