Herbal Components which Assist in Eradicating Dysbiosis

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Dysbiosis refers to an imbalance of microflora, usually indicating an increase in abnormal or noncommensal flora, with a coinciding decrease in commensal or normal flora. An increase in pathogenic bacteria, including *Shigella flexneri* and *Salmonella enteritidis,* opportunistic bacteria, including *Klebsiella pneumoniae, Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus,* and *Clostridium difficile* as well as yeasts, including *Candida albicans* in the lower bowel is typically associated with dysbiosis.[1] In addition to the intestinal tract, dysbiosis of the mouth is also known to occur, and is associated with dental carries.[2] There are numerous factors correlated with dysbiosis, including a poor diet, physical and/or psychological stress, and the overuse of antibiotics, which in turn results in depressed immunity. Psychological stress has been demonstrated to decrease the level of secretory IgA, resulting in decreased mucosal immunity.[3] In addition to other circumstances, intestinal dysbiosis has been implicated as the root cause of bowel inflammation.[4]

Aside from inflammation, dysbiosis has also been categorized as an associated cofactor in a number of health complications, including chronic fatigue, depression, food allergies, arthritis, and digestive disorders including leaky gut. Certain herbs are known to aide in promoting synergistic healing, primarily of the intestines, due to dysbiosis. These herbs include:

Stemona sessilifolia (root) - The active principals of Stemona are its alkaloids. These alkaloids exert antifungal, antibacterial and pesticidic properties. Stemona is typically indicated for acute and chronic cough; cough in phthisis (wasting syndrome) and whooping cough, as well as for cough due to exopathogens or cough occurring with or after the common cold. Its action is said to be warm in nature, rather than dry. It also has proven effectiveness for the eradication of louse and parasites.[5]

Artemisia absinthium Wormwood (extract) (shoots, leaves) – The actions of Artemisia are noted to include cholagogic (inducing bile flow), digestive, appetite stimulating and wound healing, all of which are attributed to its essential oils and amaroids.[6] It has also been demonstrated to stimulate the bitter receptors in the taste buds of the tongue, which in turn triggers a reflexive increase in stomach acid secretion. Following ingestion, a significant increase of alpha-amylase, lipase, bilirubin and cholesterol has been observed, especially in patients with liver disorders. Its antimicrobial properties are associated with the essential oil. *In vitro*, it has been demonstrated to retard the growth of *Plasmodium falciparum*[7] and has a confirmed 94.5% success rate in hookworm eradication.[6] Additionally, Artemisia has been demonstrated to exhibit hepatoprotective activities, partially via its inhibition of microsomal drug metabolizing enzymes (MDME).[8]

Artemisia absinthium is well known for its particular application in treating nematode infestation, especially infestation from either *Enterobius* (pinworm) or *Ascaris* (parasitic roundworm) species.[1,2] In Traditional Chinese Medicine (TCM) it has been used as an antiparasitic agent for more than 1,000 years,[9] as well as an antihelmintic since ancient times. Currently, it is utilized in many countries throughout the world for this purpose. For example, in the West Indies a tincture of Artemisia is employed as a worm preventative.[3] In addition, it is commonly used as a de-worming agent for animals, including horses, cows and sheep.[4,5]

Brucea javanica (fruit) – The active constituents of *Brucea javanica* are the quassinoid compounds bruceantin and brucein C.[10] It possesses properties designated as beneficial to multiple bodily systems, including the digestive and circulatory systems and the large intestines. Both the roots and fruits of *Brucea javanica* are used as popular agents against diarrhea, dysentery and fever.[11] *In vitro* studies have verified that *Brucea javanica* extracts are effective as amoebicides,[12] and clinical studies have shown it to be an effective agent in the treatment of amoebic dysentery[13, 14] and malaria.[15] In animal studies *B. javanica* was demonstrated to play an active role in immunological regulation, as evidenced by its killing effect on the cysts associated with *Pneumocystis carnii* pneumonia.[16] Other reports have illustrated its activity against various non-commensal organisms including *Shigella species (S. shiga, S. flexneri, S. boydii), Salmonella species (S. lexington, S. derby, S. typhi type II)* and *Vibrio species (V. cholerae, V. inaba* and *V. cholerae ogawa)*.[17]

Pulsatilla chinensis (rhizome) – The root (rhizome) of *Pulsatilla chinensis* has been described as possessing anodyne (pain relieving), anti-inflammatory, antispasmodic, astringent and sedative properties.[18, 19, 20] It is noted as an effective agent for bacterial and amoebic dysentery,[19, 20] and is traditionally used in the treatment of malaria, nose bleeds and hemorrhoids, as well as externally to treat infestation with *Trichomonas vaginitis*.[19, 21] It is also thought to clear toxicity and to lower fever.[22] The active compound in the root is the lactone protoanemonin, which is recognized as the bactericidal agent.[21]

Picrasma excelsa (extract) (bark) – Also referred to as Quassia, this herb is considered a powerful simple bitter, hence its use as a digestive aide. The two main ingredients are quassin and neoquassin. Traditional use is as a remedy for roundworms, as an insecticide, and as a remedy for headlice. It is also used as a therapy for digestive disorders and for parasites.[23] Orally it is used for anorexia, indigestion, constipation, fever, or as an anthelmintic for thread worms, nematodes, and ascaris.[24] A recent study with *P. excelsa* noted a moderate inhibition of the cytochrome P450 (CYP) enzyme 1A1. This enzyme is a known activator of carcinogens.[25]

Acacia catechu (extract) (stem) – The herb *Acacia catechu* is typically utilized for its astringent and antioxidant properties. The catechins isolated from this herb have significant antioxidant and antimicrobial properties. In many parts of the world, chewing sticks are made out of the stem, and because of its antimicrobial properties, it is considered a valuable component in dental care.[26] The chief phytoconstituents of the heartwood are catechin and epicatechin.

Hedyotis diffusa – *Hedyotis diffusa* is one of the most popular herbs used in TCM. It has been demonstrated to possess antioxidant,[27] anti-inflammatory, hepatoprotective,[28] neuroprotective,[29] and antitumor properties.[30] Its active principles include anthraquinones,[31, 32] iridoid glucosides,[27, 29] triterpenoids,[33] and flavonoids.[27, 29]

Yarrow *(Achillea millefolium)* (extract) (leaf, flower) – The indications for the use of Yarrow, as approved by the German Commission E, include loss of appetite, dyspeptic complaints and liver/gallbladder issues. Its actions are indicated as cholagogic (stimulates bile flow), in addition to possessing both anti-edema and anti-inflammatory attributes.[6] Anti-Staphylococcal activity has also been demonstrated with its use.[34]

Dill *(Anethum graveolens)* (seeds) – Dill is said to have a calming effect on both the autonomic nervous and digestive systems, as well as having carminative and stomachic properties.[35] It is also indicated as a diuretic, an antispasmodic, an antibacterial agent, an expectorant, and as a pancreatic stimulant.[36] It is used primarily for its action in calming the digestive system.

Contraindications:
Artemisia (wormwood) is not recommended concurrently with drugs that thin the blood, drugs that reduce stomach acid, or drugs that prevent or lessen seizures.Consuming Artemisia may intensify the effects and side effects of drinking alcohol.[37]

Yarrow is contraindicated with blood thinners, particularly coumarin. As it contains coumarin components, it may interfere with anticoagulants and blood pressure medications.[38]

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