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Nyamwamu NC
Department of Plant Science,
Kenyatta University, P.O. Box,
Keroka, Kenya

Okari OJ
Department of Educational
Foundations (Sociology of
Education), University of
Nairobi, Kenya

Gisesa WNO
Global Institute of Traditional
Medicine and Biotechnology,
P.O. Box, Keroka, Kenya

A survey of medicinal plants used by the gusii community in the treatment of digestive disorders and other inflammatory conditions

Nyamwamu NC, Okari OJ and Gisesa WNO

Abstract

An ethnomedical survey of plants used by Abagusii traditional healers of South West Kenya in the treatment of digestive system disorders and other inflammatory conditions was carried out and 26 plant species representing 18 families were botanically identified. It was found that in this ethnic group there were a great variety of healing practices, for example, steam inhalation techniques, fumigations like incense, blood-letting, hydrotherapy and many other beliefs. This study also revealed that the Abagusii healers have an extensive knowledge of their flora. This study also revealed that there is a rapid disappearance of many indigenous herbal medicinal plants, hence the need for conservation measures to be taken.

Keywords: Gusii; Kenya; Medicinal plants; digestive disorders

1. Introduction

Plants have served as the basis of sophisticated medicine systems for thousands of years in countries such as China and India. The plant based systems continue to play an essential role in Primary Health Care (PHC). Plant products also play an important role in the health care systems of the remaining 20% of the population who reside in both developed and developing countries (WHO, 1999) [21]. More than 80% of the population in developing countries lack access to essential medicines (Sofowora, 1982; WHO, 1999) [14, 21].

Traditional medicine continues to play an important role in health care. In Kenya use of traditional and alternative medicine is increasing dramatically. There is no single determinant of popularity but cultural acceptability of traditional practices along with perceptions of affordability, safety and the questioning of the approaches of allopathic medicine all play a role. African traditional medicine abounds in medicinal plants and the people wherever they do live rely on traditional medicine. The Abagusii are no exception. In addition to the traditional healers who enjoy great prestige as the real practitioners of traditional medicine, diviners and witch doctors also employ medicinal plants that are supposed to have either special spiritual or exorcising powers.

In Kenya, a large proportion of people, both in the urban and rural areas rely on traditional and alternative medicine for their health care. This is because of the many constraints limiting access to modern medicine as well as cultural and social reasons that have contributed to the persistence of traditional and alternative medicine even with the advent of modern medicine (Chabbra, 1999). Medicinal plants form the backbone of traditional and alternative medicine and their importance is not only limited to their direct use as therapeutic agents but also as starting materials for the synthesis of drugs as models for pharmaceutically active compounds. Diminishing economic resources due to high poverty levels and increased disease burdens have made allopathic medicine prohibitively expensive, thus positioning the harvesting of medicinal plants for personal use a less expensive alternative.

2. Materials and methods

Upon obtaining ethical approval and consent from relevant authorities, an ethno medical survey was carried out in Gusii land of South West Kenya. A number of herbalists in the study area were visited and interviewed. The information on the ethno medical practices gathered from the traditional healers was entered into questionnaires and field note books. The healers were quizzed about their knowledge, methods of diagnosis, preparation of herbal potions used

Corresponding Author:
Nyamwamu NC
Department of plant science,
Kenyatta University, P.O. Box,
Keroka, Kenya

in the treatment of diseases of the digestive system and other inflammatory conditions.

3. Results

Materia medica outline

An understanding of the material medica is the basis of herbal medicine. Each materia medica entry in this paper follows the same general formula explained below.

Latin binomial, Common name, Taxonomic family

Part used: This entry lists the part or parts of the herb used medicinally.

Constituents: The lists provided here represent a compilation of relevant phytochemical research on the particular remedy. This is not a comprehensive constituent listing, as each plant contains many hundreds of thousands of distinct chemicals, both organic and inorganic. Thus, only the most relevant chemicals have been listed. The ubiquitous primary constituents found in all plants have not been included.

The information provided here reflects current pharmacological thinking about which chemicals are the primary contributors to the plant's actions. It is important to remember, however, that fashions and insights come in and out of favor in science as much as in any other area of human endeavor. A wealth of scientific information about the whole range of different plant components is available. However, this does not necessarily tell us much about the value and benefits of the herb when used in healing. The activity of the whole plant is more than the sum of its parts, just as a human being is more than the sum of his or her biochemistry. Knowing the chemistry of sesquiterpenes is not the same as knowing chamomile!

Actions: This section provides an overview of the physiological actions demonstrated by the herb. Knowing the herb's actions is key to using it holistically and effectively.

Indications: Here a brief overview of the clinical indications for the herb are discussed. As there is so much variability among both people and plants (the gift of diversity!), the indications provided in herbals are rarely all encompassing.

Safety considerations: If there are any concerns about the safe use of the herb, the issues are discussed under this heading, including side effects, contraindications, and drug interactions.

Preparations and dosage: This section lists dosage ranges for various herbal preparations as given by the herbalists. Details of concentration (weight/volume ratios, expressed as "w/v") and alcohol percentages for tinctures and liquid extracts are provided. For example, a tincture containing 1 part herb to 5 parts solvent in a menstruum composed of 45% alcohol is denoted as "1:5 in 45%".

Demulcents

Symphytum officinale L

Comfrey; Risosa; Boraginaceae

Part used: Root, rhizome, leaf

Constituents: Allantoin, pyrrolizidine alkaloids, including echimidine, lycopsamine, symplandine (found in the fresh young leaves and in the root but, according to two separate investigations, not in the dried herb); phenolic acids (rosmarinic, chlorogenic, caffeic and lithospermic), mucilage

(about 29%) composed of polysaccharide containing glucose and fructose, miscellaneous :choline, asparagine, volatile oil, tannins, steroidal saponins, triterpenes (Wren, 1988)^[22].

Actions: Vulnerary, demulcent, and anti-inflammatory, astringent, expectorant.

Indications: gastric and duodenal ulcers; hiatus hernia; ulcerative colitis. Hemorrhages; bronchitis and irritable cough; external ulcers; wounds; fractures; chronic varicose ulcers.

Safety considerations: The pyrrolizidine alkaloids (PAS) in comfrey are hepatotoxic, carcinogenic, and mutagenic.

Preparations and dosage: Root tincture dosage is 2 to 4ml three times a day (1:5 in 25%). To make a decoction of the root, 1 to 3 teaspoons of dried herb are put in 1 cup of water, brought to a boil, and simmered for 10 to 15 minutes. This is drunk three times a day. A cold infusion may be made by pouring 1 cup of cold water over 2 teaspoons of root, leave to stand for 6 to 8 hours. Thus, a night time dose may be prepared in advance in the morning and a dose for mornings set up at night.

Althaea officinalis L

Marshmallow

Emasimaro

Malvaceae

Parts used: Root, leaf

Constituents: *Root:* Mucilage (including a low-molecular-weight D-glucan), flavonoids (such as kaempferol, quercetin, and diosmeti glucosides), scoploletin (a coumarin), polyphenolic acids (including syringic, caffeic, salicylic, vanillic, *p*-coumaric) (Wren, 1988)^[22].

Actions: Demulcent, emollient, diuretic, anti-inflammatory, expectorant.

Indications: digestive system; urinary system; lungs; all inflammatory disorders of the gastrointestinal tract; inflammations of the mouth, gastritis; peptic ulceration; colitis; cystitis; urethritis; urinary gravel; bronchitis; respiratory catarrh; irritating coughs; abscesses and boils; varicose veins and ulcers.

Safety Considerations: Marshmallow may delay absorption of other drugs taken at the same time.

Preparation and dosage: Tincture dosage is 1 to 4 ml three times a day (1: 5 in 25%). A cold infusion of marshmallow root may be made by infusing overnight 2 to 4 g of root in 1 cup of cold water.

Ulmus rubra Muhl.

Slippery Elm

Ulmaceae

Erimu

Part used: Inner bark

Constituents: Mucilage, composed of galactose, 3-methyl galactose, rhamnose and galacturonic acid residues (Wren, 1988)^[22].

Actions: Demulcent, emollient, nutrient, astringent, anti-inflammatory.

Indications: Sensitive or inflamed mucous membrane linings in the digestive system; gastritis; gastric or duodenal ulcer; enteritis; colitis and similar conditions; diarrhea; convalescence; boils; abscesses and ulcers.

Safety considerations: Slows the absorption of orally administered drugs.

Preparations and dosage: To make a decoction, 1-part powdered root to 8 parts water is used. First a small amount of powder is added to a little water and stirred to facilitate mixing. This is brought to the boil and then simmered gently for 10 to 15 minutes. Dosage is ½ a cup drunk three times a day. For a poultice, coarse powdered root is mixed with enough boiling water to make a paste.

Glycyrrhiza glabra L

Licorice

Erikorisi

Fabaceae

Part used: Dried root

Constituents: oleanane triterpenes (glycyrrhizin, glycyrrhetic acid, and phytosterols), flavones, isoflavonoids, chalcones, polysaccharides (mainly glucans), and volatile oils (containing fenchone, linalool, furfuryl alcohol and benzaldehyde) miscellaneous: starch, sugars, amino acid (Blumenthal *et al.*, 2003) [1].

Actions: Expectorant, demulcent, anti-inflammatory, anti-hepatotoxic, antispasmodic, mild laxative.

Indications: endocrine system and the liver problems; chronic hepatitis and cirrhosis; bronchial problems, including catarrh, bronchitis, and coughs in general; peptic ulcers; gastritis and ulcers; abdominal colic.

Safety considerations: Side effects are minimal if daily intake is less than 10 mg of glycyrrhizin. Chronic use may cause hypokalemia, headache, spastic numbness, hypertension, weak limbs, dizziness, and edema. Glycyrrhizin and glycyrrhetic acid have antidiuretic, mineralocorticoid-type actions, but these constituents are removed from most commercial extracts. The resulting extracts are denoted as "deglycyrrhizinated"

Prolonged use in conjunction with thiazide and loop diuretics and cardiac glycosides is contraindicated, and licorice should not be administered in combination with spironolactone or amiloride (WHO, 1999) [21]. This herb is not recommended for patients taking cardiac glycosides, hypotensive agents, corticoids, diuretic drugs, or monoamine oxidase inhibitors.

Preparation and dosage: Tincture dosage is 1 to 3 ml three times a day (1:5 in 40%). To make a decoction, put ½ to 1 teaspoon of root in 1 cup of water, bring to a boil, and simmer for 10 to 15 minutes. This should be drunk three times a day.

Bitters

Artemisia absinthium L

Wormwood

Egwomuguti

Asteraceae

Parts used: Leaf, flowering top

Constituents: Volatile oil, including B thujone (35%), sesquiterpene lactones (absinthin, artemetin, matricin, isoabsinthin, artemolin) acetylenes, flavonoids, phenolic acids, lignans (diayangambin and ebiyangambin) (Wren, 1988) [22].

Actions: Bitter, carminative, antimicrobial, anthelmintic, antidepressant.

Indications: indigestion; depression; worm infestations; fever and infections.

Safety considerations: Adverse effects are likely only with overdose, and are due primarily to the effects of thujone, which is toxic. Taken in high doses, wormwood preparations may cause intoxication with vomiting, severe diarrhea, retention of urine, stupor, and convulsions. Aqueous extracts contain relatively little thujone. Wormwood is contraindicated for patients with stomach hyperacidity and intestinal ulcers. It is to be avoided during pregnancy.

Gentian lutea L

Gentian

Echentiani

Gentianaceae

Parts used: Dried rhizome and root

Constituents: Iridoids: marogentin, gentiopicroside (gentiocrin), swertiamarin, xanthones, (gentisein, gentisin, isogentisin), alkaloids: mainly gentianine (0.6% to 0.8%) and gentialuline, phenolic acids including gentisc, caffeic, protocathelic, syringic, sinapis acids) miscellaneous sugars (such as gentianose and gentiobiose), traces of volatile oil (Wren, 1988) [22].

Actions: Bitter, sialagogue, hepatic, chalagogue, antimicrobial, anthelmintic, emmenagogue

Indications: lack of appetite and digestive sluggishness; dyspepsia and flatulence.

Safety considerations: In predisposed persons, gentian may cause headaches. Gentian is contraindicated during pregnancy and for those with gastric or duodenal ulcers.

Preparation and dosage: Tincture dosage is 1 to 2ml three times a day (1:5 in 40%), 15 to 30 minutes before meals, or any time acute stomach pains are associated with feeling of fullness. To make a decoction, put ½ teaspoon of shredded root in 1 cup of water and boil for 5 minutes This should be drunk warm about 15 to 30 minutes before meals, or according to the guidelines given for tincture.

Hydrastis canadensis L

Goldenseal

Egorotenisiri

Ranunculaceae

Parts used: Root, rhizome

Constituents: Isoquinoline alkaloids (2.5% to 6.0%): hydrastine (1.5% to 4.0%), berberine (0.5% to 6%) fatty acids, resin, phenylpropanoids (meconin, chlorogenic acid), phytosterins, a small amount of volatile oil (Blumenthal, 2003) [1].

Actions: Bitter, hepatic, alterative, anticatarrhal, antimicrobial, anti-inflammatory, laxative, emmenagogue, oxytocic.

Indications: Digestive problems, from peptic ulcers to colitis; loss of appetite; catarrhal conditions, especially sinus disorders; eczema, ringworm, itching, earache and conjunctivitis.

Safety Considerations: Goldenseal is contraindicated for individual with elevated blood pressure. Prolonged use of goldenseal may decrease vitamin B absorption. Like all berberine-containing plants and strong bitters, *Hydrastis* is not recommended for use during pregnancy (Mills and Bone, 1999)^[7]. Goldenseal should not be taken during lactation.

Preparation and dosage: Tincture dosage is 1ml three times a day (1:5 in 60%). To make an infusion, pour 1 cup of boiling water over ½ to 1 teaspoon of powdered root and infuse for 10 to 15 minutes. This should be drunk three times a day. Decoct unpowdered root in the usual way, by simmering.

Milder bitters

Achillea millefolium

Yarrow

Eyaro

Asteraceae

Part used: Aerial parts

Constituents: 0.3% to 1.4% volatile oil (alpha and beta-pinene, borneol, bornyl acetate, camphor-alpha-caryophyllene, 1, 8 cineole), sesquiterpene lactones (achillin, achillin, achillifolin, millifin, millifolide), 3% to 4% tannins, flavonoids (apigenin, luteolin, isorhamnetin, rutin), alkaloids (betonicine, stachydrine, achiceine, mostachine, trigonelline, and others), phenolic acids (caffeic, salicylic), coumarins (Wren, 1988)^[22].

Actions: Diaphoretic, hypotensive, astringent, anti-inflammatory, antispasmodic, diuretic, antimicrobial, bitter, hepatic

Indications: Fever; cystitis, thrombotic conditions associated with hypertension; wound healing.

Safety considerations: Hypersensitivity to yarrow and plants in the Asteraceae family has been reported. Some authorities caution using *Achillea* during pregnancy (Newall, 1996)^[9]. No restrictions during lactation are suggested.

Preparations and dosage: Tincture dosage is 2 to 4 ml (1:5 in 25%) three times a day. To make an infusion, 1 cup of boiling water is poured over 1 to 2 teaspoons of dried herb and infused for 10 to 15 minutes. This should be drunk hot three times a day. When the patient is feverish, it should be drunk hourly.

Matricaria recutita L

German Chamomile

Echamomairi

Asteraceae

Part used: Flower head

Constituents: sesquiterpenes (chamazulene, alpha-bisabolol, Ibisabolol oxide); sesquiterpene lactonesmatricin, matricarin), flavonoid glycosides (6% to 8%), apigenin, luteolin, quercetin, isorhamnetin (Blumenthal, 2003)^[1].

Actions: Nervine, antispasmodic, carminative, anti-inflammatory, antimicrobial, bitter, vulnerary

Indications: Menopausal depression, loss of appetite, dyspepsia, gastric ulcers, diarrhea, colic, aches and pains of flu, migraine, neuralgia, teething, vertigo, motion sickness, conjunctivitis, inflamed skin, urticarial, stress, anxiety and fever.

Safety considerations: Chamomile may cause allergic reactions in people sensitive to plants in the Asteraceae family. However, such reactions are extremely rare.

Preparations and dosage: Chamomile may be used in any of the ways plants are prepared as medicines. It may be used fresh or dried in infusions, and tincture is an excellent dosage to ensure that all constituents are extracted and available. Chamomile essential oil is valued in aromatherapy.

For an infusion, 2 to 3 teaspoons of herb are put in 1 cup of boiling water for 10 minutes in a covered container. This should be drunk three or four times a day. Tincture dosage is 1 to 4 ml three times a day (1:5 in 40%).

Astringents

Agrimonia eupatoria L

Agrimony

Agirimoni

Rosaceae

Parts used: Aerial parts

Constituents: Tanins (3% to 21%), coumarins, flavonoids (glycosides of luteolin, apigenin and quercetin), polysaccharides, glycosidal bitters (Wren, 1988)^[22].

Actions: Astringent, tonic, bitter, diuretic, vulnerary, antispasmodic, diaphoretic, carminative, hepatic, cholagogue.

Indications: Indigestion; diarrhea; appendicitis; mucous colitis; urinary incontinence and cystitis; sore throats and laryngitis; wounds and bruises.

Safety considerations: No side effects or drug interactions have been reported.

Preparation and dosage: Tincture dosage is 1 to 4 ml three times a day (1:5 in 45%). For an infusion, 1 cup of boiling water is poured over 1 to 2 teaspoons of dried herb and infused for 10 to 15 minutes. This should be drunk three times a day.

Geranium maculatum L

Cranesbill

Ekirenibiri

Geraniaceae

Part used: Rhizome

Constituents: Tannins, including gallic acid (levels are highest just before flowering), (Wren, 1988)^[22].

Actions: Astringent, antihemorrhagic, anti-inflammatory, vulnerary

Indications: diarrhea, dysentery and hemorrhoids; duodenal or gastric ulceration associated with bleeding; menorrhagia; metrorrhagia; leukorrhea.

Safety considerations: No side effects or drug interactions have been reported.

Preparations and dosage: Tincture dosage is 2 to 4 ml three times a day (1:5 in 40%). For a decoction, 1 to 2 teaspoons of rhizome are put in 1 cup of cold water, brought to a boil and simmered for 10 to 15 minutes. This should be drunk three times a day.

Filipendula ulmaria (L) Maxim

Meadowsweet

Emidoswiti

Rosaceae

Parts used: Aerial parts

Constituents: Volatile oil, salicylaldehyde (up to 70%), ethylsalicylate, methylsalicylate, phenolic glycosides (spiraein, monotropin, gaultherin), flavonoids (flavonoids, flavones, flavanones and chalcone derivatives), periphenolics and other tannins, mainly hydrolysable (1% in alcohol extract, 12.5% in aqueous extract), miscellaneous phenylcarboxylic acids, coumarin, vitamin C (Wren, 1988) [22].

Actions: Antirheumatic, anti-inflammatory, carminative, antacid, antiemetic, astringent

Indications: excess acidity; nausea; heartburn, hyperacidity, gastritis and peptic ulceration, diarrhea, fever, heumatism.

Safety considerations: It should be avoided by people with salicylate sensitivity.

Preparations and dosage: Tincture dosage is 2 to 4 ml three times a day (1:5 in 45%). To make an infusion, pour 1 cup of boiling water is put over 1 to 2 teaspoons of dried herb and infused in a covered container for 10 to 15 minutes. This should be drunk three times a day or as needed.

Myrica cerifera L

Bayberry

Ebeiberi

Myricaceae

Part used bark

Constituents: Triterpenes (including taraxerol, taraxerone and myricadiol); flavonoids (such as myricitrin), tannins (bark 3.9%, total aqueous extract 34.82%), miscellaneous: phenols, resins, gums (Wren, 1988) [22].

Actions: Astringent, circulatory stimulant, diaphoretic

Indications: Diarrhea and dysentery; mucous colitis; sore throats; leukorrhea; colds.

Safety considerations: No side effects or drug interactions have been reported.

Preparation and dosage: Tincture dosage is 1 to 2 ml three

times a day (1:5 in 40%). To make a decoction, 1 teaspoon of herb is put into a cup of cold water, brought to a boil and infused for 10 to 15 minutes. This should be drunk three times a day.

Carminatives (aromatics)

Foeniculum vulgare Mill

Fennel

Ebeneri

Apiaceae

Part used: Seed

Constituents: Volatile oil (8%), anethole (60% to 80%), fenchone (10% to 30%), flavonoids (mainly rutin, quercetin, and kaempferol glycosides), coumarins (bergapten, imperatorin, xanthotoxin, and marmesin) miscellaneous: sterols, fixed oils, sugars (Wren, 1988) [22].

Actions: Carminative, aromatic, antispasmodic, anti-inflammatory, galactagogue, hepatic

Indications: flatulence and colic; indigestion; lack of appetite; bronchitis and other coughs; rheumatic pains; conjunctivitis and blepharitis (inflammation of the eyelids).

Safety considerations: No side effects or drug interactions have been reported.

Preparations and dosage: tincture dosage is 1 to 2 ml three times a day (1:5 in 40%). For an infusion, 1 cup of boiling water is poured over 1 to 2 teaspoons of slightly crushed seeds and infused in a covered container for 10 minutes. This should be drunk three times a day. To ease flatulence, 1 cup is taken half an hour before meals.

Zingiber officinale Roscoe

Ginger

Etangausi

Zingiberaceae

Part used: Rhizome

Constituents: Volatile oil (1% to 3%, occasionally more), primarily containing the sesquiterpenes zingiberene and beta-bisabolone, oleoresin (4% to 10%), containing gingerols, gingerdiols, gingerdiones, dihydrogingerdiones, shogaols, lipids (6% to 8%) (Blumenthal, 2003) [1].

Actions: Stimulant, carminative, antispasmodic, rubefacient, diaphoretic, emmenagogue

Indications: Motion sickness; bad circulation; chilblains; cramps; sore throats; fibrositis and muscle sprains; lack of appetite; digestive problems.

Safety considerations: Ginger may influence bleeding times and immunological parameters because it inhibits thromboxane synthase and acts as a prostacyclin agonist. However, a clinical study demonstrated no differences in bleeding times between treatment and placebo groups (Lumb, 1994) [6]. Large doses (12 to 14 g) may enhance the effects of anticoagulant drugs.

Preparations and dosage: Tincture dose is 1.5 to 5ml three times a day (1:5 in 40%). To make an infusion, 1 cup of

boiling water is poured over 1 teaspoon of fresh root and infused for 5 minutes. This is drunk when necessary. Fluid extract dosage is 0.25 to 1 ml three times a day (1:1 in 40%).

Mentha piperita L

Peppermint

Epepaminti

Lamiaceae

Parts used: Aerial parts

Constituents: Phenolic acids (caffeic, chlorogenic, and rosmarinic acid), essential oil (up to 1.5%), the major components of which are menthol, menthone, and menthyl acetate, flavonoids (glycosides of apigenin, diosmetin, and luteolin), tannins (Blumenthal, 2003) [1].

Actions: Carminative, anti-inflammatory, antispasmodic, aromatic, diaphoretic, antiemetic, nervine, antimicrobial, analgesic.

Indications: Flatulence; flatulent dyspepsia; intestinal colic, and associated conditions; nausea; motion sickness; ulcerative conditions of the bowels; fevers; colds, and influenza; nasal catarrh; dysmenorrhea; itching and inflammation of the skin.

Safety considerations: No side effects or interactions have been reported.

Preparations and dosage: Tincture dosage is 1 to 2 ml three times a day. 1:5 in 40%). To make an infusion, 1 cup of boiling water is poured over a heaping teaspoon of dried herb and infused in a covered container for 10 minutes. This may be drunk as often as desired.

Melissa officinalis L

Lemon Balm

Eremonibarimu

Lamiaceae

Part used: Dried or fresh aerial parts

Constituents: Volatile oil (0.1% to 0.2%) neral and geranial, caryophyllene oxide and a whole range of terpenes, flavonoids in low concentrations (luteolin-7-glucoside and rhamnazin), polyphenolics (including procatechuic acid, caffeic acid, rosmarinic acid and tannins), triterpenic acids, such as ursolic and pomolic acids (Wren, 1988) [22].

Actions: Carminative, nervine, antispasmodic, antidepressant, diaphoretic, antimicrobial, hepatic

Indications: Spasms in the digestive tract; flatulence dyspepsia; depression; palpitations; insomnia, and migraine associated with tension; influenza; herpes simplex skin lesions.

Safety conditions: Lemon balm may interfere with the action of thyroid hormones.

Preparations and dosage: Tincture dosage is 2 to 6 ml three times a day (1:5 in 40%). For an infusion, 1 cup of boiling water is poured over 2 to 3 teaspoons of dried herb or 4 to 6 g of fresh herb and infused in a covered container for 10 to 15 minutes. A cup of this tea should be taken morning and evening or when needed.

Antispasmodics

Valerian officinalis L

Valerian

Ebareriani

Valerianaceae

Parts used: Rhizome stolon, root

Constituents: Essential oil (mainly composed of sesquiterpenes such as bornyl acetate, B-caryophyllene, valerone and valerenic acid). Bicyclic iridoids known as valepotriates, (including valtrate, isovaltrate, acetoxylvalerenic acid, isovalerone-hydroxydidrovaltrate) baldrinols found only in dried herb or extracts are degradation products of the valepotriates (Wren, 1988) [22].

Actions: Nervine, hypnotic, antispasmodic, carminative, hypotensive, emmenagogue

Indications: Anxiety, nervous sleeplessness, and bodily symptoms of tension, such as muscle cramping and indigestion.

Safety considerations: No drug interactions have been reported. Valerian may potentiate the effects of sedatives.

Preparation and dosage: To be effective valerian must be used in at a sufficiently high dosage. The tincture (1:5 in 60%) is the most widely used preparation and is always useful, as long as 2.5 to 5 ml (1/2 to 1 teaspoon) is given as a single dose. Up to 10 ml may be given at one time.

To make an infusion, 2 teaspoons of dried herb are used per cup of boiling water, prepared in a closed vessel to ensure no loss of volatile oils. A cold infusion may be made by pouring 1 cup of cold water over 2 teaspoons of root, left to stand for 8 to 10 hours. In this way, a night time dose may be prepared in advance in the morning and a dose for morning set up at night.

Viburnum opulus L

Cramp Bark

Ekirambubaki

Caprifoliaceae

Parts used: Dried bark

Constituents: Hydroquinones (arbutin, methylarbutin, traces of free hydroquinone) coumarins (such as scopoletin and scopolin). Tannins (mainly catechins) (Wren, 1988) [22].

Actions: Antispasmodic, anti-inflammatory, nervine, hypotensive, astringent, emmenagogue.

Indications: Relaxing muscular tension and spasm; dysmenorrhea; threatened miscarriage.

Safety considerations: No side effects or drug interactions have been reported.

Preparation and dosage: Tincture dosage is 4 to 8ml three times a day (1:5 in 40%) to make a decoction one teaspoon of dried herb is put into a cup of water. This is brought to a boil and then simmered gently for 10 to 15 minutes. This should be drunk hot three times a day.

Dioscorea villosa

Wild Yam

Omwongo omwegarori

Dioscoreaceae

Part used: Dried underground parts

Constituents: Steroidal saponins, based on diosgenin: dioscin, dioscorin and others (Wren, 1988) ^[22].

Actions: Antispasmodic, anti-inflammatory, anti-rheumatic, hepatic, cholagogue, diaphoretic

Indications: Intestinal colic; diverticulitis; dysmenorrhea; ovarian and uterine pains; rheumatoid arthritis.

Safety considerations: No side effects or drug interactions have been reported.

Preparation and dosage: Tincture dosage is 2 to 4 ml three times a day (1:5 in 40%). To make a decoction, 1 to 2 teaspoons of herb are put in 1 cup of water, brought to the boil, and simmered gently for 10 to 15 minutes. This should be drunk three times a day.

Aperients and laxatives

Rumex crispus
Yellow Dock
Eyierodoki
Polygonaceae

Part used: Root

Constituents: Anthraquinone glycosides (about 3% to 4%, including nepodin, physio and emodin) miscellaneous: tannins and oxalates (Wren, 1988) ^[22].

Actions: Alterative, laxative, hepatic, cholagogue, tonic

Indications: chronic skin complaints, such as psoriasis; constipation; jaundice.

Safety considerations: Fresh yellow dock root may cause vomiting. Yellow dock may potentiate the activity of stimulant laxatives.

Preparations and dosage: Tincture dosage is 1 to 2 ml three times a day (1:5 in 40%). To make a decoction, 1 to 2 teaspoons of root are put in 1 cup of water, brought to the boil, and simmered gently for 10 to 15 minutes. This should be drunk three times a day.

Senna alexandrina Mill
Senna
Sena
Fabaceae

Part used: Dried fruit pod, leaf

Constituents: Anthraquinone glycosides (leaf, sennosides A-D, fruit: sennosides A and B and closely related glycoside, sennoside A1), naphthalene glycosides (tinnevellin glycoside and 6-hydroxymusizin glycoside), miscellaneous: mucilage, flavonoids, volatile oil, sugars, resins (Wren, 1988) ^[22].

Action: Cathartic

Indications: constipation.

Safety considerations: Senna may reduce the absorption of oral drugs by decreasing bowel transit time. Overuse or misuse may cause potassium loss leading to increased toxicity of cardiac glycosides. Senna aggravates loss of potassium associated with diuretic use.

As an anthraquinone-containing cathartic, senna is

contraindicated in chronic constipation because it can lead to dependency and other problems. There are many contra indications based upon senna's power to stimulate peristalsis. Contraindications include any intestinal obstruction, stomach inflammation due to griping, and intestinal inflammatory disease, such as appendicitis, colitis, irritable bowel syndrome, ulcerative colitis, and Crohn's disease. Senna is also contraindicated in cases of abdominal pain of unknown origin, anal prolapse, and hemorrhoids. Avoid during pregnancy or lactation or in children younger than 12 years of age.

Preparations and dosage: To make an infusion, dried pods or leaves are steeped in warm water for 6 to 12 hours. This is drunk in the morning and at night. Usually, 3 to 6 *Alexandrina senna* pods or 4 to 12 *Tinnevelly senna* pods per cup of water are used.

Taraxacum officinale
Dandelion
Etandelioni
Asteraceae

Part used: Root, leaf

Constituents: Sesquiterpene lactones (taraxacoside) others; diterpenes, including taraxacin, titerpenes, (taraxaceterol, arnidiol, faradiol, B-amyrin); sterols (stigmasterol, beta-sitosterol), carotenoids, such as lutein and violaxanthrin, xanthophylls, flavonoids (apigen, luteloin), polysaccharides (glucans, mannans, inulin,), potassium (up to 4.5% in aerial parts) (Bisset, 1994) ^[3].

Actions: Diuretic, hepatic, cholagogue, antirheumatic, laxative, tonic, bitter

Indications: inflammation and congestion of the liver and gallbladder. It is specific for cases of congestive jaundice (Vogel, 1977) ^[20]. In addition, it can be very effective as part of a wider treatment for muscular rheumatism.

Safety considerations: Dandelion may theoretically cause allergic reaction in people sensitive to plants in the Asteraceae family. There have been rare reports of contact dermatitis in people coming in frequent contact with the latex found in the stem (Bisset *et al.*, 1994) ^[3].

Preparations and dosage: Root tincture dosage is 2.5 to 5 ml three times a day (1:5 in 60%). To make a decoction, 2 to 3 teaspoons of root are put into 1 cup of water, brought to a boil, and gently simmered for 10 to 15 minutes. This must be drunk three times a day.

Leaf tincture dosage is 5 to 10 ml three times a day (1:5 in 40). To make a leaf infusion, 1 cup of boiling water is poured over 1 to 2 teaspoons of dried leaf and infused for 10 to 15 minutes. This should be drunk three times a day. The leaf may also be eaten raw in salads.

Hepatics and cholagogues

Chelone glabra
Balmony
Ebarimoni
Scrophulariaceae

Parts used: Dried aerial parts

Constituents: Very little research has been conducted on this plant.

Actions: Cholagogue, hepatic, bitter, antiemetic, stimulant, laxative

Indications: liver problems; gallstones, inflammation of the gallbladder; jaundice. Loss of appetite; colic; dyspepsia, and biliousness; debility; inflamed breasts; painful ulcers and piles.

Safety considerations: No side effects or drug interactions have been reported.

Preparations and dosage: Tincture dosage is 1 to 2 ml three times a day (1:10 in 40%). To make an infusion, 1 cup of boiling water is poured over 2 teaspoons of dried herb and infused for 10 minutes. This should be drunk three times a day.

Artemisia vulgaris

Mugwort

Emagigwati

Asteraceae

Parts used: Leaf, root

Constituents: Volatile oil (linalool, 1, 8-cineole, b-thujone, borneol and B-pinene), sesquiterpene, lactones (vulgarin) flavonoids, coumarin derivatives, triterpenes (Wren, 1988) [22].

Actions: Bitter tonic, Stimulant, nervine tonic, emmenagogue.

Indications: Digestive stimulation, tension, emmenagogue to promote normal menstrual flow.

Safety considerations: Mugwort is potentially allergic to people sensitive to plants in the Asteraceae family.

Preparation and dosage: Tincture dosage is 1 to 4ml three times a day (1:5 in 25%). To make an infusion, 1 cup of boiling water is poured over 1 to 2 teaspoons of dried herb and infused for 10 to 15 minutes in a covered container. This should be drunk three times a day.

4. Discussion

Modern insight into the fate of much plant material in the digestive tract support a view that herbal remedy mostly affects the gut and its immediate surroundings. Adding what is known of the interrelationships between digestive activity

and the wider body's physiology allows the modern phytotherapist to develop a rationale for the effect of herbal medicines on the body that is both unique to these remedies and provides potentially powerful therapeutic strategies.

The fragmentary nature of research support from herbal therapeutics is always a major limitation but fortunately in the area of the digestive tract there is a more than usually reliable experience of efficacy. The digestive tract is one of the most accessible organs in the body and most traditional treatments relied on immediate clinical effects.

Dosage and other prescription practicalities

Most experience of the impact of herbal remedies on the digestion was associated with the use of heroic doses applied to a cut indication. Emetics and cathartics were often the first resort of treatment and dysentery, life threatening gastro intestinal infections and hepatitis the most common indications. Even with more robust constitutions the occasionally dramatic effects of eating unrefrigerated food were very familiar. The remedies outlined above were favoured because they had rapid effect. The gastrointestinal tract provides a large surface area and the process of digestion quickly denatures and dilutes remedies for most of the effects referred to. Therefore, relatively large doses of plant extracts need to be taken and the preparation needs to contain the relevant constituent. It is not good having a convenient extract of plant without its mucky mucilage resin or tannin if those are the constituents one needs! 'Most prescriptions based on quantities measured in drops or milligrams would be unlikely to have much impact on this system. The main exceptions are the bitters and not spices or other cases where the target receptors are close to the point of entry or the agent is particularly powerful.

It is also likely that for many effects long-term treatment is inappropriate. The cases of tannins and anthraquinones are examples of when this may even be hazardous. In practice, one finds that for most gut-mediated mechanisms the effect is strongest in the earliest days of treatment and often wears off quite quickly. It is much better to work on short-term prescriptions of relatively strong doses constantly monitoring for immediate feedback and adjusting accordingly. In any long-term strategy it is generally wise to treat intermittently maintaining the option of frequent prescription changes according to results.

In their treatment of digestive disorders, the Gusii traditional healers used plant materials which fall under the following categories; bulk laxatives emetics, mucilages, saponins, tannins, pungent constituents, aromatics, volatile spasmolytics, laxatives and bitters. The primary actions and herbs for the treatment of digestive system disorders according to the healers are outlined in the Table 1.1.

	Action	Herb
1	Demulcent	<i>Symphythum officinale, Althaea officinalis, Ulmus rubra, Glycyrrhiza glabra</i>
2	Bitter	<i>Artemisia absinthium, Gentiana lutea, Hydrastis Canadensis</i>
3	Milder bitter	<i>Achillea millefolium, Matricaria recutita</i>
4	Astringent	<i>Agrimonia eupatoria, Geranium maculatum, Filipendula Ulmaria, Myrica cerifera</i>
5	Carminative (aromatics)	<i>Foeniculum vulgare, Zingiber officinale, Mentha peperita, Matricaria recutita, Melissa officinalis</i>
6	Anti-inflammatory	<i>Matricaria recutita</i>
7	Antispasmodic carminatives	<i>Matricaria recutita, Valeriana officinalis, Viburnum opulus, Dioscorea villosa</i>
8	Aperient and laxative	<i>Rumex crispus, Senna alexandrina, Taraxacum officinale</i>
9	Hepatic and Cholagogue	<i>Taraxacum officinale, Chelone glabra, bitters</i>
10	Nervine	<i>Matricaria recutita, Valeriana officinalis, Artemisia vulgaris</i>
11	Anthelmintic	<i>Artemisia absinthium, Dryopteris filix-mas</i>
12	Other Actions	<i>As needed to ensure good general health.</i>

Demulcents

Symphytum officinale L

The impressive wound healing properties of comfrey are due at least in part to the presence of allantoin. This chemical stimulates cell proliferation and thus supports wound healing, both internally and externally. Because it also contains a good deal of demulcent mucilage, comfrey root is a powerful healing agent for gastric and duodenal ulcers, hiatus hernia, and ulcerative colitis. Its astringency makes it valuable in the treatment of hemorrhages, wherever they occur. The root or herb may be used to good effect in bronchitis and irritable cough to soothe and reduce irritation while promoting expectoration.

Used internally, comfrey leaf speeds wound healing and fosters proper scar formation. Care should be taken with very deep wounds, however, as external application of comfrey can cause tissue to form over the wound before it is healed deeper down, which can lead to abscesses. Used as a compressor poultice, the herb may be used to treat any external ulcers, wounds, and fractures, it is an excellent treatment for chronic varicose ulcers.

Long-term studies with rats have demonstrated that the pyrrolizidine alkaloids (PAS) in comfrey are hepatotoxic, carcinogenic, and mutagenic.

Althaea officinalis L

Because of the abundance of mucilage it contains, marshmallow is an excellent demulcent that is indicated whenever such an action is needed. Marshmallow root is used primarily in the digestive system, and the leaf in the urinary system and lungs. All inflammatory disorders of the gastrointestinal tract will benefit from the application of marshmallow root, including inflammations of the mouth, gastritis, peptic ulceration, and colitis. Leaf helps in cystitis, urethritis, and urinary gravel, as well as bronchitis, respiratory catarrh, and irritating coughs.

Externally, the herb is often used as an ingredient in drawing ointments for abscesses and boils and as an emollient for varicose veins and ulcers. The mucilage has demonstrated hypoglycemic activity in nondiabetic mice (Tomodo *et al.*, 1987) [17]. Antimicrobial activity against *Pseudomonas aeruginosa*, *Proteus vulgaris*, and *Staphylococcus aureus* has been documented (Recio *et al.*, 1989) [12]. Marsh- mallow may delay absorption of other drugs taken at the same time.

Ulmus rubra Muhl.

Slippery elm is a soothing, nutritive demulcent that is perfectly suited for treating sensitive or inflamed mucous membrane linings in the digestive system. The herb is used in gastritis, gastric or duodenal ulcers, enteritis, colitis and similar conditions. Used to treat diarrhea, it simultaneously soothes and astringes the tissues of the intestinal lining.

Slippery elm makes an excellent food to be eaten during convalescence, as it is mild and easily assimilated. It makes an excellent poultice for external use in cases of boils, abscesses and ulcers. Considerations: Slippery elm may slow the absorption of orally administered drugs.

Licorice is a traditional herbal remedy with an ancient history and worldwide usage. Modern research has demonstrated that the herb has effects upon the endocrine system and the liver, among other organs. The triterpenes of *Glycyrrhiza* are metabolized in the body to molecules with a structure similar to that of the adrenal cortex hormones. This may be the basis of the herb's anti-inflammatory action.

As an antihepatotoxic, licorice can be effective in the

treatment of chronic hepatitis and cirrhosis, for which it is widely used in Japan. Much of the liver-oriented research has focused upon the triterpene glycyrrhizin. Studies show that this constituent inhibits hepatocyte injury caused by carbon tetrachloride, benzene hexachloride, and polychlorinated biphenyl (PCB) (Paolini, *et al.*, 1998). It inhibits the growth of several DNA and RNA viruses and irreversibly inactivates herpes simplex virus particles (Pompei *et al.*, 1979) [10].

Licorice has a wide range of applications for bronchial problems, including catarrh, bronchitis, and coughs in general. The herb is used in orthodox medicine as a treatment for peptic ulcers, and is similarly used in herbal medicine for gastritis and ulcers. It may also be effective in relieving abdominal colic.

Prolonged use in conjunction with thiazide and loop diuretics and cardiac glycosides is contraindicated, and licorice should not be administered in combination with spironolactone or amiloride (WHO, 1999) [21]. This herb is not recommended for patients taking cardiac glycosides, hypotensive agents, corticoids, diuretic drugs, or monoamine oxidase inhibitors.

Bitters

Artemisia absinthium L

Traditionally, wormwood has been used in a wide range of conditions, from indigestion to depression, many of which have been validated by scientific analysis. The herb is primarily used as a bitter to stimulate and invigorate the whole digestive process. It is helpful in indigestion, especially when due to a deficient quantity or quality of gastric juices. As the name implies, wormwood is a powerful remedy against worm infestations, especially roundworm and pinworm. The herb may also be used to help the body deal with fever and infections. It has a long history of use as an antidepressant among the Gussii herbalists.

Gentian lutea

Gentian is an excellent bitter that stimulates the appetite and digestion via general stimulation of digestive juices. Thus, it promotes the production of saliva, gastric juices, and bile. Because of this stimulation, it has a generally fortifying effect. It also accelerates the emptying of the stomach. It is indicated for most cases involving lack of appetite and digestive sluggishness, as well as dyspepsia and flatulence.

Hydrastis canadensis L

Goldenseal owes much of its value to its tonic effects on mucous membranes. This probably accounts for its effectiveness in digestive problems, from peptic ulcers to colitis. The alkaloids it contains stimulate bile production and secretion, and this bitter stimulant activity makes it useful for loss of appetite.

It is effective in catarrhal conditions, especially sinus disorders. The herb's pharmacological activity, including its antimicrobial properties, is usually attributed to the isoquinoline alkaloid constituents, primarily hydrastine and berberine. Berberine has immune-stimulant, antispasmodic, sedative, hypotensive, uterotonic, choleric and carminative actions. It also has anti-microbial activity, and while not in the same league as pharmaceutical antibiotics, it has a broad spectrum of antibiotic activity. Activity has been demonstrated against a number of bacteria, protozoans, and fungi *in vitro* (Wren, 1988) [22].

Traditionally, *Hydrastis canadensis* was used during labor to help contraindications, but for this very reason, it should not be taken during pregnancy. Applied externally, it can help with eczema, ringworm, itching, earache, and conjunctivities.

Mild bitters*Achillea millefolium*

Achillea is an important diaphoretic herb and is a standard remedy for helping the body deal with fever. It stimulates digestion and tones blood vessels. As a urinary tract antiseptic, it is indicated in infections such as cystitis, for which it is most effective if used fresh.

Achillea is considered a specific in thrombotic conditions associated with hypertension, and is thought to lower blood pressure through dilation of peripheral vessels. Researchers believe that it is anti-inflammatory and anti-spasmodic actions are related to its content of flavonoids (Bruneton, 1995) [2]. Used externally, *Achillea* aids in wound healing. Anti-microbial activity against a range of bacteria has been reported for water and ether extracts of the plant (Bisset, 1994) [3].

***Matricaria recutita* L**

This herb has a wide range of actions in the body. Chamomile, is safe for use in all types of anxiety and stress related disorders. It relaxes and tones the nervous system, and especially valuable when anxiety and tension produce digestive symptoms, such as gas, colic pains, and even ulcers. This ability to ease physical symptoms as well as underlying psychological tension is one of the greatest benefits of herbal remedies in stress and anxiety. Chamomile makes a wonderful late night tea to ensure sleep. It is helpful for anxious children or teething infants when added to bathwater. As an antispasmodic herb, chamomile works on peripheral nerves and muscles, and indirectly relaxes the whole body. When the physical body is at ease, the heart and mind follow. The herb prevents and eases muscle cramps, whether in the legs or in the abdomen. When added to a bath in a hard day, chamomile infusion or essential oil relaxes the body and eases the cares and weight of a troubled heart and mind.

Because chamomile is rich in essential oil, it acts on the digestive system, promoting proper function. This usually involves soothing the walls of the intestines, easing griping pains, and facilitating the elimination of gas. A cup of hot chamomile tea is a simple, effective way to relieve indigestion. It calms inflammations, such as gastritis, and helps prevent ulcers.

Used internally, it is an effective anti-inflammatory remedy for the digestive and respiratory system, it has a similar action on the skin when applied externally. A steam inhalation of chamomile essential oil puts its valuable constituents in contact with inflamed mucous membranes in the sinuses and lungs. Chamomile is also a mild antimicrobial that helps the body destroy or resist pathogenic microorganisms. As an anticatarrhal, it assists in the elimination of excess mucus buildup in the sinus area. It may be used to treat head colds and allergies; such as hay fever.

Agrimonia eupatoria L

The combination of astringency and bitter tonic properties makes this herb a valuable remedy, especially when astringent activity is needed in the digestive system, as the herb also contributes a tonic action through bitter stimulation of digestive and liver secretions.

Geranium maculatum L

This herb is an effective astringent used for diarrhea, dysentery, and hemorrhoids. When duodenal or gastric ulceration is associated with bleeding, this remedy may be used in combination with other relevant herbs. Cranesbill will help when blood is lost in the feces, although careful diagnosis is vital. It is also indicated for treatment of

menorrhagia (excessive blood loss during menstruation) or metrorrhagia (uterine hemorrhage). As a douche, it may be used to treat leukorrhea. When duodenal or gastric ulceration is associated with bleeding, this remedy may be used in combination with other relevant herbs. It is also indicated for treatment of menorrhagia (excessive blood loss during menstruation) or metrorrhagia (uterine hemorrhage). As a douche, it may be used to treat leukorrhea.

Geranium maculatum L

The herb protects and soothes the mucous membranes of the digestive tract, reducing excess acidity and easing nausea. It is used in the treatment of heartburn, hyperacidity, gastritis, and peptic ulceration. Its gentle astringency is especially helpful in children's diarrhea. The presence of aspirin-like chemicals (salicylates) explains meadowsweet's ability to reduce fever and relieve the pain of rheumatism in muscles and joints.

Myrica cerifera L

It is a valuable astringent for diarrhea and dysentery and is also indicated for mucous colitis. Applied as a gargle, it soothes sore throats, and when used as a douche, it helps with leukorrhea. It may also be used for the treatment of colds.

Foeniculum vulgare Mill

Fennel is an excellent stomach and intestinal remedy that relieves flatulence and colic while stimulating digestion and appetite. It is similar to aniseed in its calming effect in bronchitis and other coughs, and is a good choice for flavoring cough remedies. Fennel may increase milk flow in nursing mothers. Used externally, the essential oil eases muscular and rheumatic pains. Fennel infusion may be used as a compress to treat conjunctivitis and blepharitis (inflammation of the eyelids).

Zingiber officinale Roscoe

The best-known therapeutic application of this spice is a treatment for motion sickness, a use well documented in the research literature. Ginger also effectively stimulates peripheral circulation, making it effective for bad circulation, chilblains, and cramps. In feverish conditions, ginger acts as a useful diaphoretic, promoting perspiration. As a gargle, it helps relieve sore throats. Externally, it is the base of many treatments for fibrositis and muscle sprains.

Ginger has been used around the world as an aromatic carminative and pungent appetite stimulant. In India and other countries with hot and humid climates, ginger is eaten daily and is a well-known remedy for digestive problems. It is popular not only for its flavor, but also because its antioxidant and antimicrobial properties help to preserve food, an essential action in such climates.

Research has documented a wide range of activities for ginger. Clinical studies have shown that the herb is effective as a prophylactic against seasickness (Grontved *et al.*, 1988; Mowry and Clayson, 1982) [5, 8]. Animal studies have suggested that it has hypoglycemic, hypotensive, hypertensive, antihypercholesterolemic, chalogogic and stomach properties (Newall *et al.*, 1988). Human pharmacological studies have shown that ginger causes a reduction in platelet aggregation. (Srivastava, 1989) [15]. Ginger demonstrates anti-inflammatory effects in rheumatoid arthritis due to a dual inhibition of cyclooxygenase and lipoxygenase (Srivastava *et al.*, 1989) [16]. It has also shown an ability to inhibit the actions of prostaglandins (Lumb, 1994) [6].

Mentha piperita L

Peppermint is an excellent carminative with relaxing effects on the muscles of the digestive system. It combats flatulence,

flatulent dyspepsia, intestinal colic, and associated conditions, and stimulates the flow of bile and digestive juices. The volatile oil acts as a mild anaesthetic to stomach wall, allaying feelings of nausea and the desire to vomit. It also helps to relieve the nausea and vomiting of pregnancy and motion sickness.

Peppermint can play a role in the treatment of ulcerative conditions of the bowels. It is a traditional treatment for fevers, colds, and influenza. As an inhalant, peppermint provides temporary relief of nasal catarrh. It may help with headaches associated with indigestion, and its nervine actions ease anxiety and tension. Used for dysmenorrhea, it relieves pain and eases associated tension. Externally, peppermint is applied to soothe itching and inflammation of the skin.

Melissa officinalis L

This carminative herb, relieves spasms in the digestive tract and is useful in flatulence dyspepsia. Because of its mild antidepressant properties, it is primarily indicated when dyspepsia is associated with anxiety and depression, as the gently sedative oils relieve tension and stress reactions. The volatile oil appears to act on the interface between the digestive tract and the nervous system. Lemon balm has a tonic effect on the heart and circulatory system and causes mild vasodilation of peripheral vessels, thus lowering blood pressure. It may be used for feverish conditions, such as influenza.

Valerian officinalis L

Valerian has a wide range of specific uses. However, its main indications are anxiety, nervous sleeplessness, and bodily symptoms of tension, such as muscle cramping and indigestion. In short, this herb may be safely used for any situation in which tension and anxiety cause problems, either psychological or physical. It is a valuable muscle relaxant, effective for muscle spasms, uterine cramps, and intestinal colic. Valerian helps promote normal sleep as it is not powerful enough to suppress necessary REM phases.

Viburnum opulus L

Cramp bark is used for relaxing muscular tension and spasm. It has two primary areas of use: cramps of the voluntary muscles and uterine muscle problems. Cramp bark relaxes the uterus and thus relieves painful menstrual cramps (dysmenorrhea). In similar way, it may be used to protect against threatened miscarriage. Its astringent action gives it a role in the treatment of excessive menstrual blood loss and, especially, irregular bleeding during menopause.

Dioscorea villosa

Wild yam is a remedy that can be used to relieve intestinal colic, soothe diverticulitis, ease dysmenorrhea, and relieve ovarian and uterine pains. It is of great use in the treatment of rheumatoid arthritis, especially the acute phase, in which there is intense inflammation.

Rumex crispus

Yellow dock is used extensively in the treatment of chronic skin complaints, such as psoriasis. While anthraquinones usually have a strong cathartic action on the bowel, in this herb they act mildly, possibly tempered by the tannin content. Because yellow dock works in a broader manner than herbs that simply stimulate gut action, it is a valuable remedy for constipation. Yellow dock promotes the flow of bile and has somewhat obscure action of blood cleansing". Its influence on the gall bladder gives it a role in the treatment of jaundice due to congestion.

Senna alexandrina Mill

Senna is a powerful cathartic used in the treatment of constipation that works via stimulation of the intestinal

peristalsis. However, it is vital to remember that constipation is a symptom and that the cause must always be sought and treated.

Taraxacum officinale

Dandelion leaf is a powerful diuretic, with an action comparable to that of the drug furosemide. The usual effect of a drug that stimulates kidney function is loss of vital potassium from the body, which can aggravate any cardiovascular problem that may be present. Dandelion leaf, however, is not only an effective diuretic, but also one of the best natural sources of potassium. It is thus an ideally balanced remedy that may be used safely whenever diuretic action is needed, even for water retention related to heart problems. Overall, this herb is a most valuable general tonic and perhaps the best widely applicable diuretic and liver tonic.

In one study investigating the effect of oral administration of dandelion extracts in rats and mice, leaf extracts produced greater diuresis than root extracts, and a dose of 50ml/kg body weight (equivalent to 2 g dried herb) produced an effect comparable to that of furosemide given at a dosage of 80 mg/kg (Raz-Kotilla *et al.*, 1974) ^[11]. As a hepatic and cholagogue, dandelion root may be helpful for inflammation and congestion of the liver and gallbladder. It is specific for cases of congestive jaundice (Vogel, 1977) ^[20]. In addition, it can be very effective as part of a wider treatment for muscular rheumatism.

Chelone glabra

Balmony is an excellent agent for liver problems and acts as a tonic for the whole digestive system. The herb stimulates the secretion of digestive juices, and in this way produces its laxative actions. Balmony is used to treat gallstones, inflammation of the gallbladder, and jaundice. It is considered a specific for gallstones that lead to congestive jaundice. The herb stimulates appetite, eases colic, dyspepsia, and biliousness, and is beneficial in debility. Externally, it has been used to treat inflamed breasts, painful ulcers, and piles.

Artemisia vulgaris

As a bitter, mugwort may be used whenever digestive stimulation is indicated. However, the herb supports digestion not only through bitter stimulation, but also through carminative actions conferred by the volatile oils it contains. In addition, it has a mild nervine action, which also appears to be related to the volatile oil content, that may ease help digestion and tension. Thus, it is essential that the volatile oil is not lost in preparation. Mugwort may also be used as an emmenagogue to promote normal menstrual flow.

Bulk laxatives

Plant materials still provide the primary source of fibres that remain undigested and can swell when hydrated to bulk up the stool contents. The usual reason for consuming these materials is to help reduce constipation. However, an important application for bulk laxatives is constipation and predominant irritable bowel syndrome (IBS). Indeed, this can be the first line of therapy. They are also valuable in correcting disturbed bowel flora as prebiotics, in calming an irritated bowel wall in inflammatory bowel disease, in counteracting potential irritative effects of bile metabolites and in slowing the absorption of sugars and cholesterol.

Some of the bulk laxatives were also used for their obvious mucilaginous properties in reducing inflammatory problems in the upper sections of digestive tract. According to the healers, bulk laxatives need to be taken whole and as powdered material most conveniently in capsule form with

food. Long term therapy with extra supplementation of soluble fibre intake should be reviewed where absorption of mineral nutrients is a critical issue.

Emetics

Therapeutic vomiting is much less applied than in previous centuries. Even in its usual modern application, it has been demonstrated as an inefficient way to remove ingested poisons with appreciable amounts being forced into the small bowel (Saetta *et al.*, 1991) [13]. Activated charcoal as a non-emetic treatment for poisoning is likely to be superior (Vale, 1992) [19], for example in paracetamol poisoning (Underhill *et al.* 1990) [18]. The main reason to maintain this category is in the use of emetic plant remedies in sub-emetic doses as reflex expectorant. The healers used emetics as a first line of treatment especially for enteric and bronchitic infections and for any evidence of biliary toxicity. It was always understood that their use was essentially debilitating. A robust constitution was an essential prerequisite.

Mucilages

According to the healers the demulcent quality of plant mucilages remains one of the most effective short-term reliefs for irritation of the upper digestive tract, notably including reflux into the oesophagus and other effects of acid dyspepsia. The fate of indigested mucilages lower down the tract is not always certain. However, some such as ulmus (slippery elm) have persistent reputations as remedies for irritation and inflammation lower down the gut and there may be some mucilaginous effect in some plant material. Where these emerge into prebiotic polysaccharide and fibre elements mucilages are consistently used to calm irritating coughs almost certainly by reflux from their demulcent effect on swallowing.

According to the healers mucilages should be taken in a formulation that preserves their physical characteristic. They consider encapsulation as the most effective way of administering the whole material (subject to the contents being adequately sterilized) but cold aqueous infusion is the most efficient extraction process using glycerol later for preservative purposes. Depending on the indication they may be taken before meals (for digestive problems of the stomach and small intestine) during meals (for some stomach problems) or after meals (in the case of reflux oesophagitis/hiatus hernia). The healers consider that long term therapy with mucilages presents few problems but as they are essentially management treatments such use may disguise the need for more substantial treatments.

Saponins

According to the healers the detergent properties of this phytochemical group can have a range of mild topical actions on the gut wall. These from near emetic activity (for example with *Cephaelis senega* and *Primula* species) to a likely effect improving assimilation (as in the saponin content of many vegetables). This group therefore can share some of the properties of the emetics and mucilages and in the latter case can add considerably to the demulcent effect as seen notably with *Glycyrrhiza* extract and *Trogonella*.

The healers recommend that saponin rich plants may be taken before meals or if there is a sensitive stomach immediately after eating. According to the healers, long term therapy with saponin-rich plants should be avoided unless dosage levels are small or clear benefits are apparent which diminish if treatment is stopped. The impact of saponins on digestion and

absorption is sufficiently clear.

Tannins

According to the healers, tannins can provide short-term healing and anti-inflammatory effects on the gut wall, though these effects are likely to rapidly reduce with transit through the tract unless in slowly dispersing solid form. Effects on the bowel, for example in diarrhea, can however be significant if the symptom is a reflex consequence of irritation in the gastric or upper enteric passage (gastroenteritis), the use of tannins is not to be recommended as a long term solution. The healers recommend that tannins should be taken after food in most cases. For some lesions of the upper digestive tract short-term use between meals or before food is justifiable. Long-term therapy with high doses of tannins is to be avoided.

Pungent constituents

Spices have had a long central role in digestion and have a key role in traditional therapeutics. Overall, they can both stimulate and calm upper digestive functions depending on the circumstance and particularly the individual constitution. Usually the patient will know whether these remedies suit them or not and it is always a good question in a consultation according to the healers. Hot spices can feature in prescriptions taken at various times of the day. When taken primarily for their impact on the digestion, they may be taken before meals if there are no local inflammatory conditions in the upper digestive tract with or after meals if the gut wall proves sensitive or there is a tendency to hyperacidity. According to the healers, long-term therapy with pungent remedies is acceptable if the individual is comfortable with the regime however it should be discontinued if there are any digestive discomforts.

5. Conclusion

The Abagusii ethnic group had a great variety of healing practices, for example, steam inhalation techniques, fumigations like incense, blood-letting, hydrotherapy and many other beliefs. This community; Abagusii healers have an extensive knowledge of their flora. However, there is a rapid disappearance of many indigenous herbal medicinal plants, hence the need for conservation measures to be taken.

Conflict of interest

“The author(s) declare(s) that there is no conflict of interest.” There was no role of the funding sponsors in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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