



CLINICAL MASTER HERBALIST

TCMH: FINAL EXAM

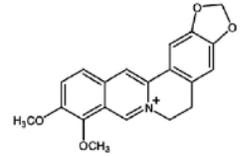
Select the best answer for each question.

1. _____ *Silybum marianum* (Milk Thistle) contains a potent phytochemical called _____. It has been shown to increase levels of the master antioxidant, glutathione, exerts membrane-stabilizing activity, promotes hepatocyte regeneration, inhibits fibrogenesis in the liver, and can significantly reduce tumor cell proliferation and insulin resistance.
 - A. Silythistle
 - B. Silymarin
 - C. Marianbum
2. _____ What two types of immune cells are known for attacking foreign invaders using a process called “phagocytosis”?
 - A. Macrophages & neutrophils
 - B. Eosinophils & basophils
 - C. Mast cells & epithelial cells
 - D. Neutrophils & basophils
3. _____(True or False) Maceration, or soaking a plant in a solvent, is performed to draw into a liquid solution the soluble constituents of the plant and to separate this solution from the insoluble residue or the marc.
4. _____ Cleavers is a lymphatic cleanser which relieves lymphatic swelling, particularly where there is acute “hot” _____. It is a cooling diuretic.
 - A. Inflammation
 - B. Constriction
 - C. Palpations
5. _____(True or False) Wild Yam (*Dioscorea spp.*) contains the steroidal saponin, dioscin, which is metabolized into progesterone by the body.
6. _____ Fennel when combined with _____, makes a great child’s remedy for fever, colic, and general restlessness.
 - A. Gotu kola
 - B. Blue flag
 - C. Catnip

7. _____ (True or False) Many species from the Mint Family are popular kitchen spices, including: basil, rosemary, lavender, marjoram, oregano, lemon balm, thyme, savory, horehound, and sage.
8. _____ (True or False) The true alterative slowly but surely cleans and purifies the bloodstream while at the same time steadily toning up the organ(s) which may not be able to secrete properly due to impurities from the blood.
9. _____ St. John's Wort is primarily known as an antidepressant. As a nervine, it has sedative and pain-relieving effects appropriate for treating _____, anxiety, and tension, and any irritable and anxious effects of menopausal changes.
- A. Incontinence
 - B. Neuralgia
 - C. *Candida*
10. _____ Which set of herbs would be most helpful for mood swings and menopause-related hot flashes?
- A. Black Walnut, Cayenne, Garlic
 - B. Motherwort, Sage, Maca
 - C. Comfrey Root, Irish Moss, Wild Cherry
11. _____ (True or False) Poke root is one of the most powerful botanical sedatives. It is used in large doses and is suitable for very young children and adults.
12. _____ Yellow dock root stimulates _____, which helps digestion, particularly of fats. It also gently stimulates bowel movements and increases the frequency of urination to assist in toxin elimination. The roots of yellow dock have been found to contain as much as 40% iron compounds, making yellow dock one of the best blood builders in nature.
- A. Bile production
 - B. Hepatic circulation
 - C. Enzyme production
13. _____ (True or False) Herbs that are classified as adaptogens contain phytochemicals that increase the ability of an organism to adapt to physical, emotional, biological, and environmental stressors. Adaptogens, like tonic herbs, may be used daily and are generally non-toxic.
14. _____ Which set of herbs contain only adaptogens?
- A. Rhodiola, Ashwaganda, Blue Cohosh
 - B. Rhodiola, Rosemary, Schisandra
 - C. Rhodiola, Withania, Schisandra

15. _____ (True or False) Berberine is found in the herbs Goldenseal, Oregon Grape, and Barberry. Berberine is different than most alkaloids. It is very water-soluble because in its normal state it is charged (N⁺). Most alkaloids are soluble in mid- to high-percentage ethanol/water solvents. Berberine is the exception.

16. _____ The herb _____ is the only one that also has hydrastine (protoberberine), an astringent, antiseptic, mucous membrane tonic which is more soluble in EtOH. A hydroethanolic tincture of this herb will contain both berberine and hydrastine.



- A. Barberry
- B. Goldenseal
- C. Oregon Grape

17. _____ **What is the alcohol and water content of Everclear bottled at 190 proof?** Proof is defined as twice the alcohol (ethanol) content by volume. For example, 100 proof vodka is 50% alcohol and 50% water, 120-proof would contain 60% alcohol and 40% water, and 80-proof means 40% of the liquid is alcohol and 60% is water.

- A. 5% alcohol and 95% water
- B. 195% alcohol and 5% water
- C. 95% alcohol and 5% water

18. _____ (True or False) A hydroethanolic mixture is a combination of alcohol and water. Water is more polar than alcohol.

19. _____ As the percentage of ethanol in the mixture increases, the overall polarity decreases. As the percentage of water in any given mixture increases, so does the overall polarity. Adding more water _____ the polarity of a hydroethanolic mixture.

- A. Increases
- B. Decreases
- C. Equalizes

20. _____ Like dissolves Like! Oil and high percentage alcohol are low-polarity solvents so they are used for extracting the lower polarity constituents, like resins and curcumin. Higher-polarity solvents like water, glycerol, and low-percentage EtOH are used to extract _____ molecules like sugar-based constituents, mucilage, and smaller polyphenols.

- A. Neutral-polarity
- B. Lower-polarity
- C. Higher-polarity

21. _____ (True or False) An essential oil (EO) extracted from a plant will have the same actions as the whole plant. For example, the essential oil thymol found in thyme is the active ingredient, therefore you can use thyme EO instead of the whole herb (tincture or capsule) and achieve the same results.

22. _____ Essential oils are not lipids (fats). They are:
- Small terpene compounds (monoterpenes and sesquiterpenes).
 - Soluble in mid-to-high percentage EtOH and in fixed oils.
 - Slightly are soluble in water (especially hot water) and soluble in steam.
 - All of the above
23. _____ (True or False) Rich sources of inulin include onions, leeks, garlic, asparagus, artichoke, 'Jerusalem Artichoke', and the roots of dandelion, burdock, and chicory. Dried chicory roots can contain up to 80% inulin. Elecampane (*Inula helenium*) root is 40-50% inulin.
24. _____ (True or False) The inulin in Burdock roots are resistant to extraction, a gentle decoction is best. Burdock root is mild but powerful and may be consumed on a regular basis.
25. _____ (True or False) Consuming foods that contain inulins on a regular basis can raise blood sugar levels, inhibit the absorption of minerals, and harm the GALT (gut-associated lymphoid tissue) system.
26. _____ (True or False) FOS (fructooligosaccharides) are "slightly" processed inulins found in supplements.
27. _____ Green leaves (e.g., Kale, Collards, Nettles, and Violets), and fresh fruits and vegetables all contain useful levels of ascorbate (ascorbic acid/vitamin C). The richest known edible plant sources include:
- Kakadu plum (*Terminalia latipes*) and Indian Gooseberry/Amla (*Emblica officinalis*)
 - Bee Balm (*Monarda spp.*) and Perilla (*Perilla frutescens*)
 - Rose hips, Camu camu (*Myrciaria dubia*), and Acerola (*Malpighia emarginata*) berries
 - Only A and B
 - Only A and C
28. _____ (True or False) Any plant containing oxalates is dangerous because oxalates are able to bind to calcium. Yellow dock root has a low oxalate to calcium ratio but because it contains oxalates it should not be used as in herbal medicine.
29. _____ (True or False) Alkamides are an unusual class of molecules found in only a few different medicinal plants, including: Echinacea, Spilanthes, *Zanthoxylum* (Prickly Ash, Hercules' Club), *Anacyclus pyrethrum* (Pellitory), and several Piper species including Black Pepper (*P. nigrum*) and Pippali (Long Pepper – *P. longum*).

30. _____ Alkamide is a general term that includes the alkylamides, alkenylamides, and alkenylamides. The isobutylamides (e.g., those from Echinacea) are a large subclass of the alkamides; they have an isobutyl group attached to the amide group. Alkamides are generally:
- Low-polarity compounds, but the amide group introduces some polarity so they are soluble in both oily media and hydroethanolic solvents with around 40–60% ethanol.
 - Amphiphilic so they have a somewhat soapy taste
 - Able to cause varying degrees of tingling, numbness, or sensations of pungency in the mouth and on the tongue.
 - All of the above
 - None of the above - alkamides are not found in plants
31. _____ (True or False) Trans fatty acids become incorporated into the phospholipids of cell membranes, their altered shapes may disrupt the function of certain receptors and proteins.
32. _____ Because thiocyanates (and to a lesser degree, isothiocyanates) can inhibit the utilization of _____ by the thyroid gland, **very large doses** of glucosinolates and their derivatives have been implicated in hypothyroidism or the development of goiter; pre-existing hypothyroidism might be aggravated by **high consumption** of glucosinolate-rich foods or herbs.
- Iodine
 - Vitamin A
 - Selenium
 - Manganese
33. _____ (True or False) **Cassava** contains cyanogenic glycosides that release considerably larger amounts of thiocyanates in the body compared to the Brassica (cruciferous) vegetables and herbs
34. _____ Many of the glucosinolates are a source of important therapeutic metabolites. Many of these originate from vegetables in the Brassicaceae family, including Brussels Sprouts (one of the richest known sources), Broccoli (especially the sprouts), Cauliflower, and Cabbage. **Which statement(s) about glucosinolates is true?**
- Glucobrassicin is metabolized in the body to become indole-3-carbinol (1-3-C) and diindolylmethane (DIM).
 - Glucosinolates have immunomodulatory and anticancer properties.
 - Glucosinolates stimulate the detoxifying activity of the phase II enzyme systems.
 - All of the above
 - Only A & B
35. _____ (True or False) Rosmarinic acid is the major compound responsible for GABA transaminase inhibition activity in lemon balm. Lemon balm is a stimulating and excitatory herb that is useful for improving energy and physical activity performance.

36. _____ The iphenylpropanoid dimer, _____, is named after Rosemary (*Rosmarinus officinalis*) and is found in many plants of the Lamiaceae and Boraginaceae families, including Rosemary, Peppermint, Basil, Sage, Thyme, Oregano, Lemon Balm (*Melissa officinalis*), Bee Balm (*Monarda spp.*), Perilla (*Perilla frutescens*), Borage (*Borago officinalis*), and Comfrey.
- A. Rosmarinic acid
 - B. Officinalis acid
 - C. Rosmarinic alkaloid
37. _____ (True or False) Hydroethanolic extracts of dried Lemon Balm are an especially rich source of rosmarinic acid. Lemon Balm has been found to act as an antiviral, anti-inflammatory, and neuroprotective (in mouse model).
38. _____ (True or False) In Grapefruit juice, bergapten and its derivatives have been found to inhibit a number of cytochrome p-450 enzyme isoforms. The flavonoid co-constituent naringenin is also known to inhibit a number of other CYP isoforms. If a person is taking pharmaceuticals which are broken down by any of these specific enzymes, they may be advised to avoid drinking grapefruit juice so that excessive levels of the drugs do not accumulate in the body.
39. _____ Angina pectoris results when oxygen supply and occasionally other nutrients are inadequate for metabolic needs of heart muscle. Which nutritional supplement is an essential component of mitochondrial energy production?
- A. Magnesium
 - B. CoQ10
 - C. Niacin
40. _____ (True or False) The idea the gut mucosal immunity may be impaired in those with ADHD is unfounded. This impairment does not lead to an increased susceptibility to gut pathogens and food allergies. Also, intestinal/gut permeability is never altered because of food allergies (causes inflammation).
41. _____ (True or False) B vitamins help the liver inactivate estrogen while selenium aids synthesis of liver detoxification. Decreasing omega-6 fatty acids while increasing omega-3 fatty acids and increasing indole-3-carbinol foods are some of the considerations when working with endometriosis.
42. _____ Macular Degeneration: The macula is the area of the retina where most images focus and the portion of the retina responsible for fine vision. The macula (and central portion, the fovea) owes its yellow color to high concentrations of _____, which prevent oxidative damage to the retina and protect against MD.
- A. Lutein and Zeaxanthin
 - B. Bilberry and Ginkgo
 - C. Copper and Zinc

43. _____ (True or False) TSH receptor antibodies in Graves' disease share a similar structure with antibodies against several pathogenic organisms in the gut. Cases of Graves' have started during or shortly after acute infection with *Yersinia enterocolitica* and *Borrelia burgdorferi* (Lyme disease).
44. _____ The Ketogenic Diet consists of:
- A. Low Carbs, Moderate Protein, High Fat
 - B. No Carbs, Moderate Protein, Low Fat
 - C. Low Fat, High Protein, Moderate Carbs
45. _____ Glucosamine is a natural compound found in cartilage (the tough tissue that cushions joints). In supplement form, glucosamine is harvested from shells of shellfish or made in a lab. Glucosamine:
- A. Helps cartilage, tendons, and ligaments to repair quicker by speeding up their metabolism
 - B. Causes tendons to rupture
 - C. Reduces inflammation in connective tissues and therefore helps with pain
 - D. A & C only
46. _____ Which technique is useful in inducing sleep and for reducing stress?
- A. Looking at a bright cell phone or computer screen for an hour right before bed
 - B. Moderate exercise, eliminating caffeine, calcium/magnesium, and/or EFA supplementation, reading quietly, chamomile tea before bed
 - C. Eating dinner late at night
 - D. Watching a horror movie, playing video games, or using social media shortly before lying down for the night
47. _____ (True or False) Because fruits are high in fructose and fiber, they do not usually cause drastic changes in blood sugar levels.
48. _____ Most parasite cleansing programs should be followed with:
- A. Moderate exercise, eliminating caffeine probiotics, and nutrient dense food to promote complete intestinal healing
 - B. A diet high in grains and high glycemic-index foods.
 - C. Over-the-counter proton pump inhibitors to reduce stomach acid
 - D. All of the above
49. _____ (True or False) Antibiotic use in children may cause Antibiotic Resistant Viruses.
50. _____ (True or False) If an herbal tincture label states that the product lowers blood sugar levels or is anti-diabetic, the FDA will recognize your right to free speech.

End of Test