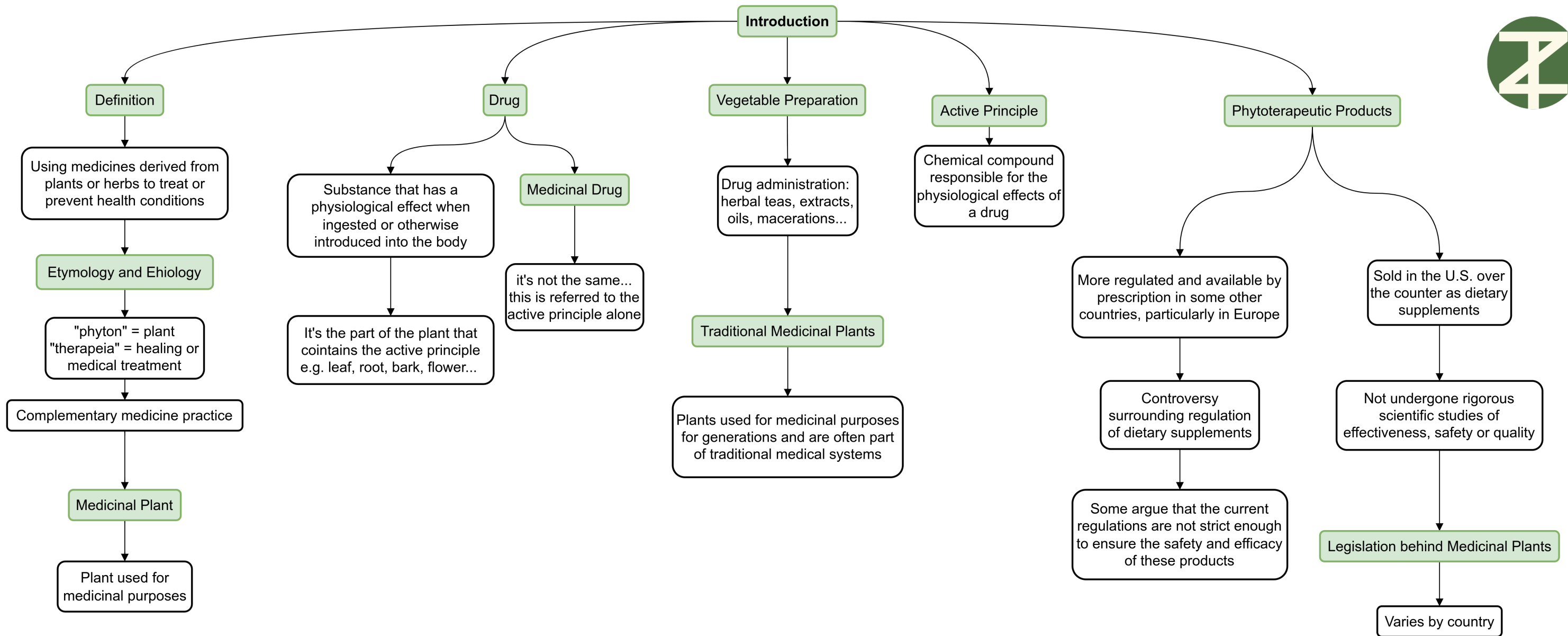
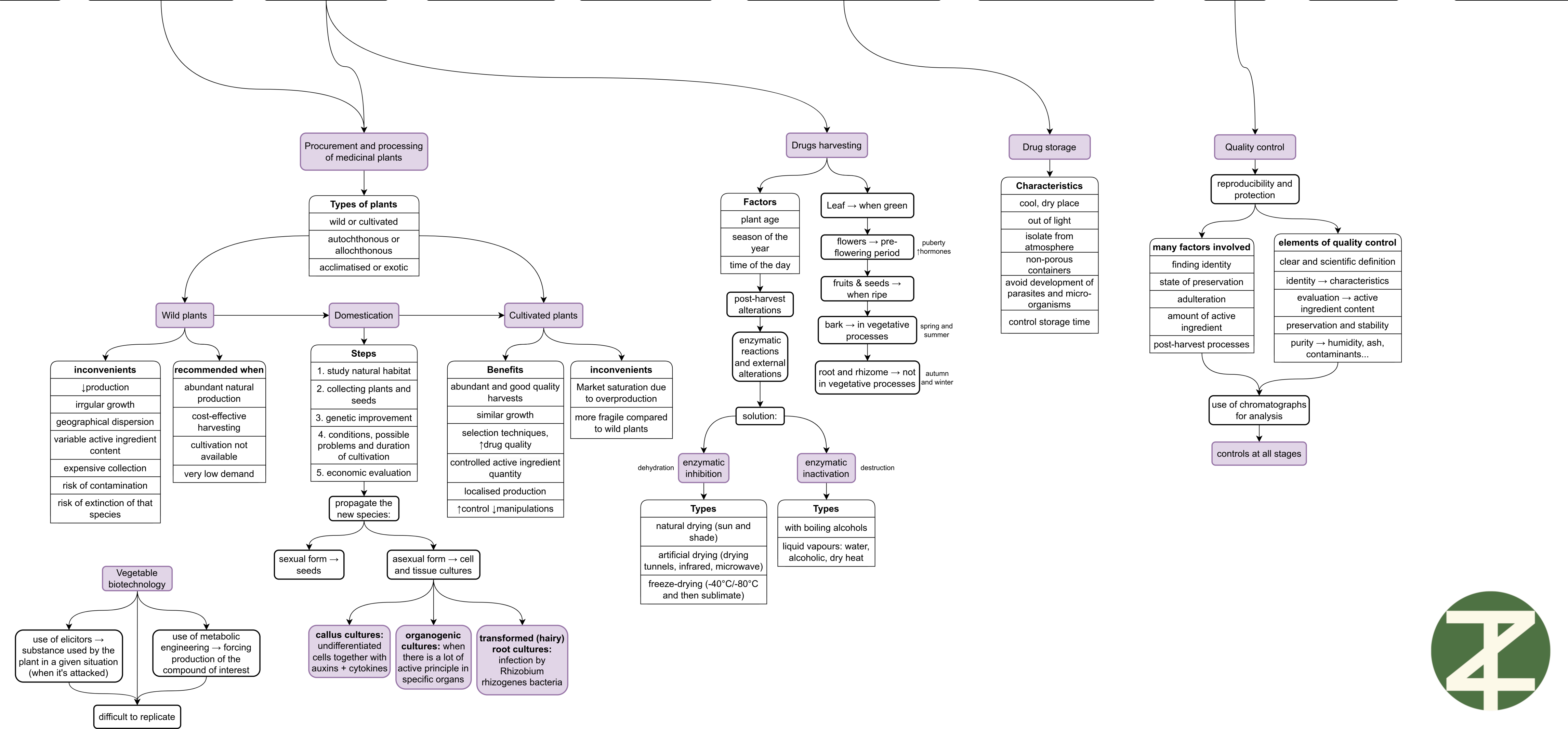
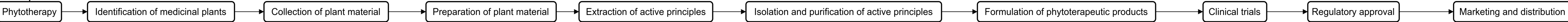
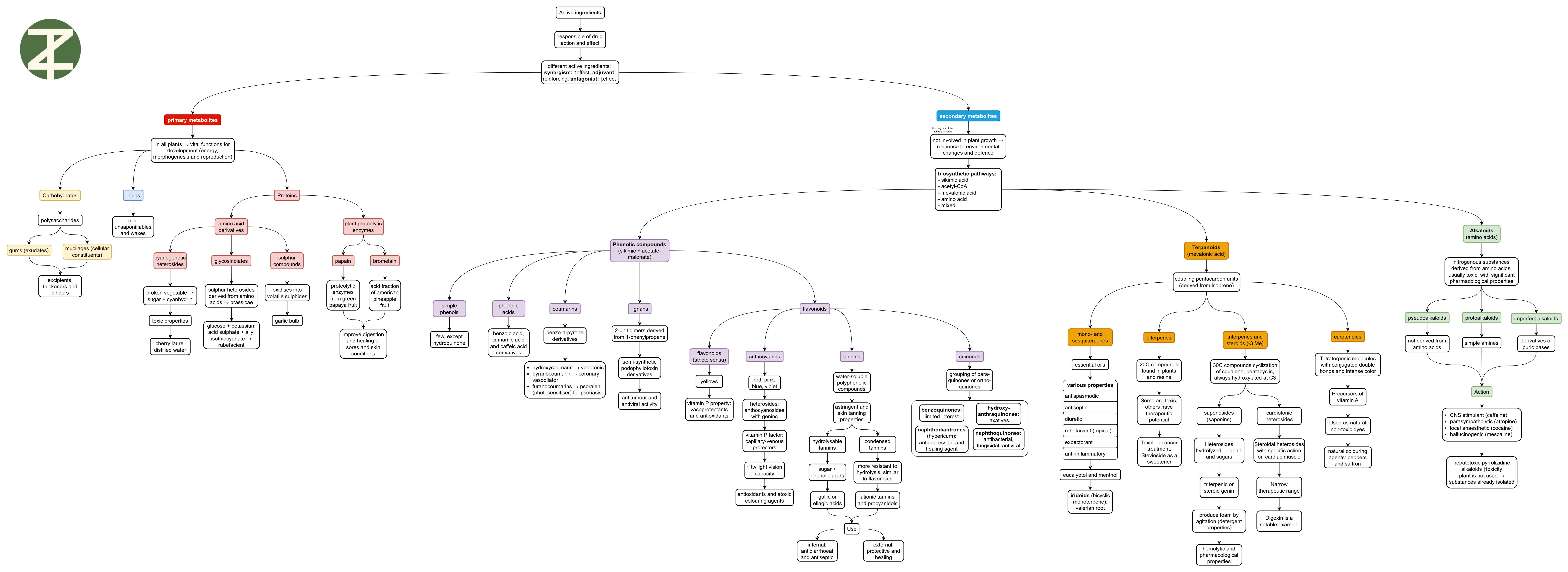
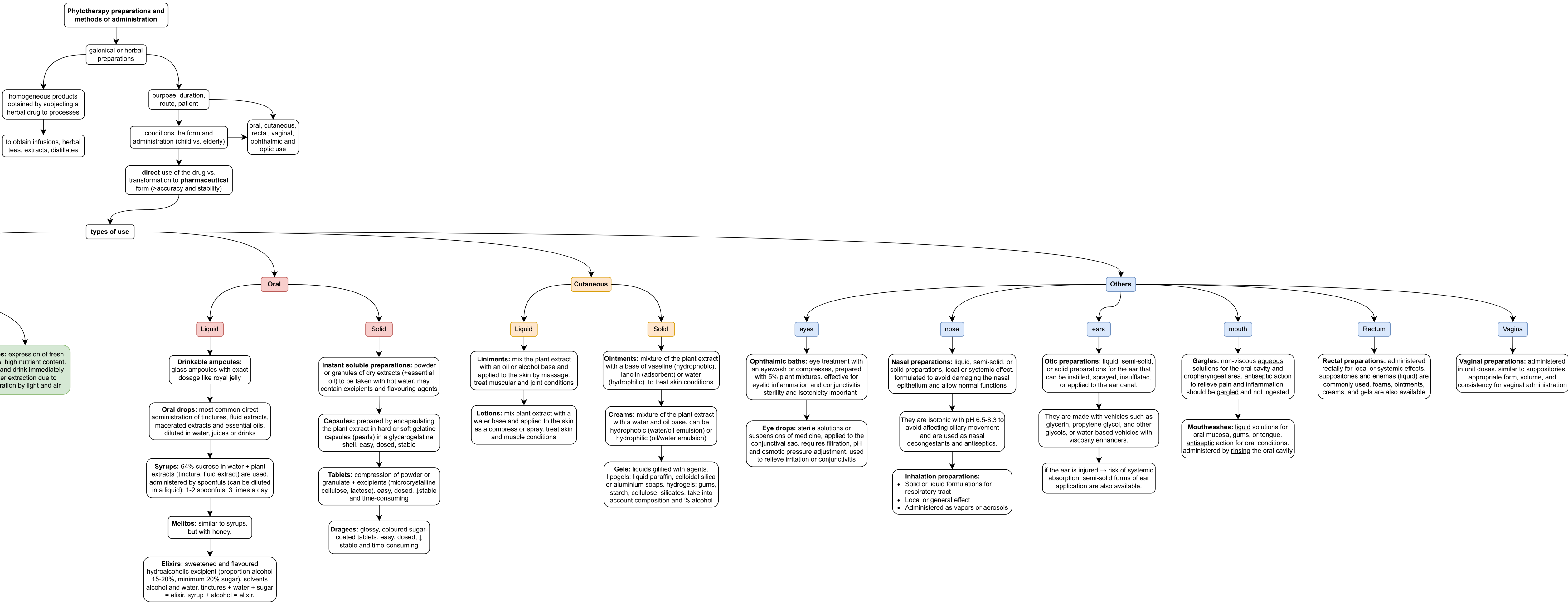


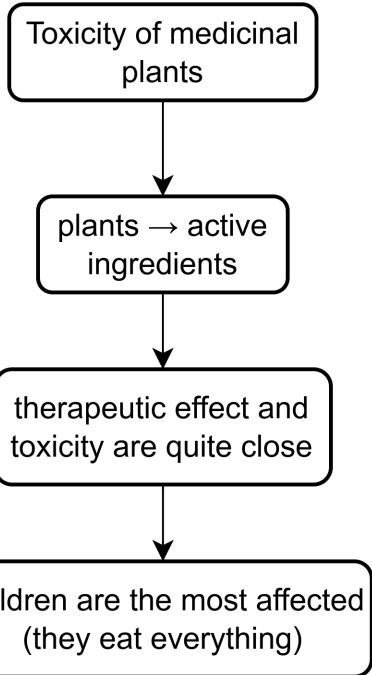


Collection, harvesting, preservation and storage of medicinal plants

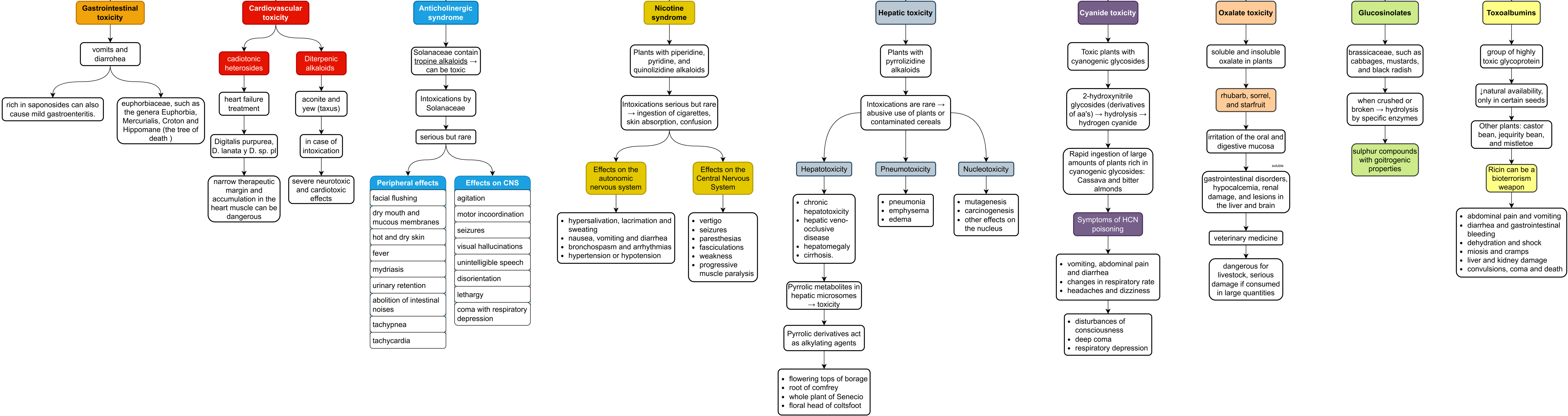








types





Adverse Reactions of Medicinal Plants

Increased consumption as self-medication

considered effective and safe due to their "natural" character

should actually be considered as medicines

adverse effects, interactions, and contraindications

should require same safety guarantees as other medicines

Types of Adverse Reactions

On the Central Nervous System

hallucinogenic and anticholinergic effects

headache, hyperexcitability, or drowsiness

Plants that alter CNS

- Valerian root:** withdrawal syndrome (prolongued use)
- Fruit of star anise (atenol):** neurotoxicity in children
- Tuyona (tuya, sage, and absinthe):** convulsions
- Pinocamphone (hyssop):** convulsions
- Aerial parts of ephedra:** headache, anxiety, tremors, insomnia
- Cassava rhizome:** cyanogenic heterosides → konzo (paraparesis)
- Lathyrus seeds (ODAP):** neurolathyrism (leg rigidity with a later paralysis)

Dermatological

Pruritus, skin rash, urticaria

Allergic contact dermatitis → aloe vera gel, garlic bulb

Photosensitization

bergamot, celery, fig (furanocoumarins), St. John's wort (naphthodianthrone)

Arnica flower (sesquiterpene lactones)

+ sunlight → acute dermatitis, vesicles to blisters, hyperpigmentation

from vesicles to necrotic lesions (use very diluted)

Hepatic

Highly susceptible to a wide range of injuries, a highly exposed organ

clinical manifestations of hepatotoxicity

Hepatic veno-occlusive disease

unsaturated pyrrolizidine alkaloids

borage, comfrey, senecio, coltsfoot

Chronic hepatitis

wall germander flowers

used in weight loss diets in the 90s, now banned

Cholestatic hepatitis

kava roots (from Polynesia with anxiolytic properties)

hepatic toxicity effects when imported to Europe, withdrawn in 2001

Suspension of the commercialization

ethanolic dry extract of green tea leaves with 25% catechols and 5-10% caffeine

2003; cholestatic hepatitis and steatosis

Nephrological

organ closely involved in the detoxification of xenobiotics

especially prone to toxic action

Irreversible nephropathies

species of the Aristolochia genus (prohibited in 2001)

aristolochic acid linked to kidney damage and disease

Belgian women, treatment with Chinese herbal medicines for weight loss...

Nephrolithiasis (kidney stones)

species of Ephedra (ephedrine)

can generate nephritic colic by precipitating in the renal tubules

It's infrequent

Endocrine

Not frequent

Consumption of iodine-rich algae (Fucus thallus)

recommended in certain weight loss regimens

hyperthyroidism

Ginseng root

ginseng abuse syndrome

- anxiety and irritability
- nervousness and insomnia
- hypertension
- morning diarrhea and skin rashes

+ estrogenic effects

Keep below 2g per day

Liquorice root

pseudo-hyperaldosteronism

- muscle weakness
- hypertension
- hypokalemia
- water and sodium retention

Glycyrrhizin and genin → enzyme inhibition and corticoid effect

Keep below 1-3g of licorice per day (200mg glycyrrhizin)

Others

Gastralgia

presence of tannins, saponins, and/or essential oil

in butcher's broom or horse chestnut

Slight laxative effect of devil's claw root

Stimulant laxative drugs of the colon

hydroxyanthracene derivatives

senna leaves and aloe vera gel

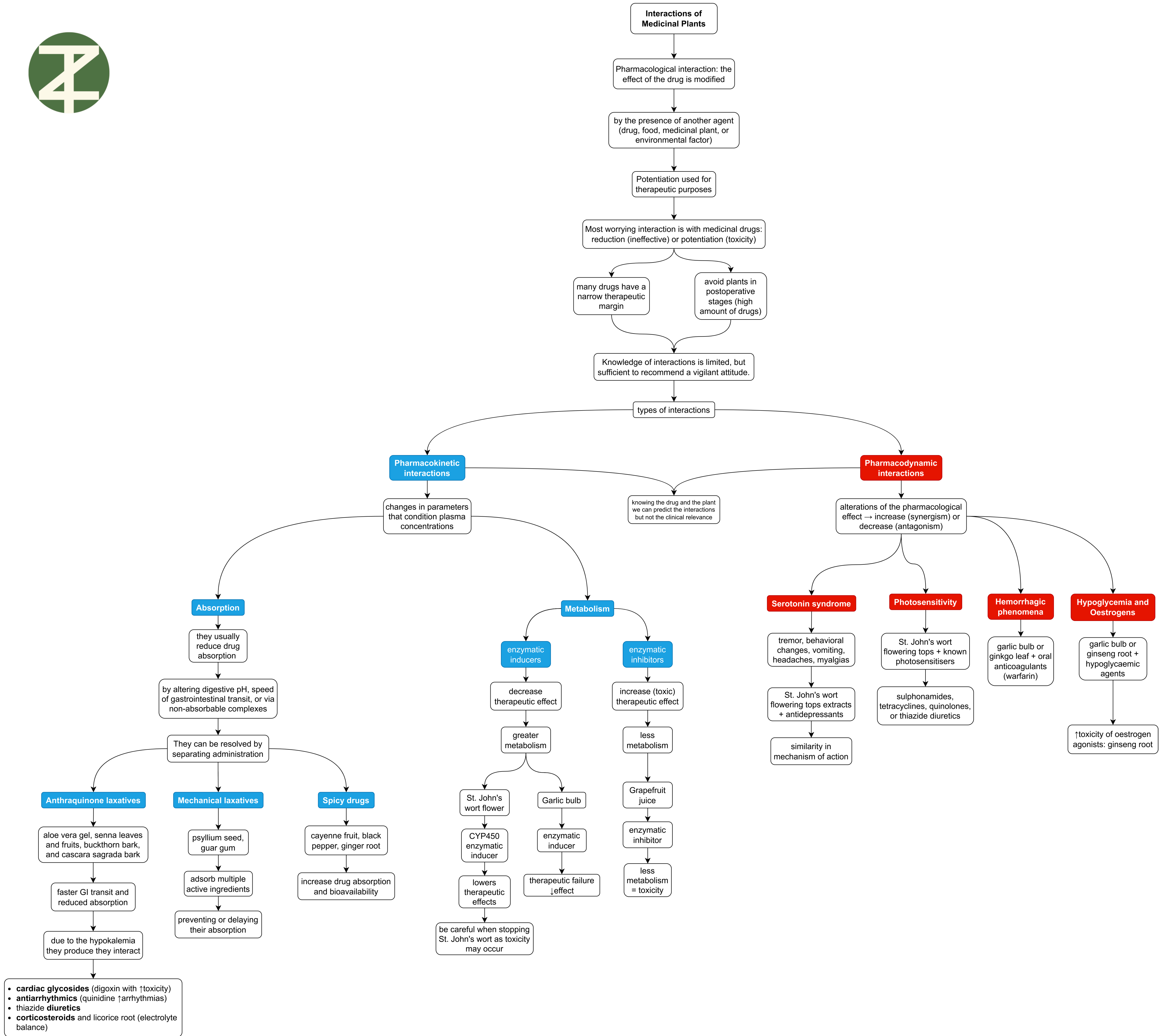
blackish discoloration of the colon + lazy bowel syndrome

Ginkgo leaf

- headaches
- dizziness
- digestive disorders
- allergic reactions

Garlic bulb

- digestive disorders
- dermatitis
- characteristic odor in breath and sweat





Medicinal plants used in Central Nervous System disorders

Insomnia, Nervousness, and Anxiety

Insomnia

sleep disorder, difficulty falling asleep, daytime fatigue

Anxiety

unease, worry, fear, stress, excessive, persistent

Drugs

Valerian Root

part: dried underground parts

has a characteristic nauseating odor

active ingredients: epoxyiridoid esters, essential oil, and non-volatile sesquiterpenes

action: sedative, hypnotic, muscle relaxant, and antispasmodic actions

adverse effects: an excess can give headaches, excitability, insomnia, arrhythmias, and withdrawal syndrome

interactions: alcohol, benzodiazepines, and barbiturates can enhance its sedative effect

contraindications: not in pregnancy, lactation and children under 3 years of age, do not use before driving or operating dangerous machinery

posology: 2-3 g of drug or equivalent doses of dry extracts, 1 or more times a day

Passionflower, passionflower herb

part: aerial parts (stems, leaves, flowers, and fruits)

Similar to valerian for insomnia, anxiety

active ingredients: Flavonoids, alkaloids, pyranic derivatives, phytosterols

action: sedative, anxiolytic, antispasmodic, and muscle relaxant

adverse effects: an excess can give nausea, vomiting, and sedation

interactions: could enhance the sedation of sedative drugs

contraindications: not in pregnancy, lactation, and children under 12 years old

posology: daily dose of 0.5-2 g of drug or equivalent doses of other preparations

Hawthorn

part: flowering tops

thorny shrub with shortly petiolate leaves and inflorescences in corymb

active ingredients: flavonoids (1-2%, hyperoside) and proanthocyanidins (1-3%)

action: cardiotonic, antiarrhythmic, and coronary vasodilator effects; sedative and muscle relaxant actions

adverse effects: none reported

interactions: do not combine with sedative drugs or cardiotonic heterosides

contraindications: not in pregnancy, lactation, and children under 12 years old

posology: 2-5 g/day of powdered drug or 160-900 mg/day of hydroalcoholic extract

Lavender

part: flower and essential oil

Lamiaceae family

active ingredients: essential oil (1-3%) rich in monoterpenes, tannins, coumarins, flavonoids, and phenolic acids

action: sedative, hypnotic, anxiolytic, antibacterial, carminative, local analgesic, and anti-inflammatory effects, spasmolytic and chologogue actions

adverse effects: none reported

interactions: do not take with other sedative drugs, anxiolytics, or alcohol

contraindications: not in pregnancy, lactation, and children under 12 years old

posology: infusion 1-2g/150 ml, 3 times a day. 1-4 drops/day of essential oil, also topical use

Hypericum or St. John's Wort

part: flowering tops collected at full bloom

perennial herbaceous plant

active ingredients: naphthodianthrone, flavonoids, derivatives of phloroglucinol, tannins, xanthenes, phytosterols, phenolic acids, essential oil

action: antidepressant, anxiolytic, anti-inflammatory, antispasmodic, antiviral, wound-healing, and antibacterial effects

adverse effects: gastrointestinal discomfort, fatigue, headaches, and allergic signs, possible photosensitisation at high doses

interactions: antidepressants, anticoagulants, oral contraceptives, and immunosuppressants, sedative effects of alcohol

contraindications: not in pregnancy, lactation, and children under 12 years old

posology: standardized preparations with at least 0.3% naphthodianthrone calculated as total hypericin or 2-4.5% hyperforin

Saffron

part: stigma and petals

Iridaceae family

active ingredients: heterosidic carotenoids, picrocrocin, and safranal

action: antioxidant, cytotoxic, hypolipidemic, hepatoprotective, neuroprotective, anxiolytic, and antidepressant effects

adverse effects: none reported at doses used for culinary purposes

interactions: none reported

contraindications: not in pregnancy (may stimulate uterine contractions)

posology: hydroalcoholic extracts of saffron stigma (30 mg/day), max daily dose: 1.5g. other uses: spice in food

Depression

mood disorder, sadness, hopelessness, loss of interest, fatigue

Drugs

methylxanthines

part: cola nut, guarana seed, yerba mate leaf, and tea leaf

psycho-stimulants that reduce fatigue, improve concentration, and produce little addiction

active ingredients: methylated xanthines, mainly caffeine, also theophylline and theobromine

action: CNS stimulant, diuretic, lipolytic, cardiac stimulant, peripheral vasodilator, cerebral vasoconstrictor, smooth muscle relaxant and ergogenic

adverse effects: at high doses can give digestive and neurological symptoms

interactions: additive effect with MAOIs and SSRIs, digitalis toxicity, carbamazepine, clozapine, and dipyrindamole effect, benzodiazepines, cimetidine, ethinylestradiol, and mestranol → caffeine toxicity

contraindications: caffeine allergy, cardiovascular disorders, GI ulcers, gastritis, epilepsy, insomnia, anxiety, pregnancy, lactation and children <12 years old

posology: max 300 mg of caffeine a day, not to consume after 5 pm, take after meals to avoid gastric irritation

Adaptogenic plants

plants that increase or enhance the body's defense capacity

against physical or psychological external aggression, acting in a prophylactic (protective) manner

adaptogens capable of adapting the body to situations of stress stimulating the non-specific resistance of the body

Some Plants

- Eleuthero root and rhizome
- Fruit and seed of schisandra
- Rhodiola root and rhizome
- Ginseng root

action: CNS stimulant, diuretic, vasoconstrictor, bronchodilator (theophylline), lipolytic

- hypolipidemic
- antiplatelet
- angioprotective
- vitamin P action
- anti-inflammatory
- antidiarrheal
- antibacterial
- antiviral
- antioxidant

posology: 2.5 g/150 ml in infusion for 2 minutes if used as a stimulant, and 10-20 minutes if used as an antidiarrheal coadjutant

Asthenia and Stress

Asthenia

weakness, fatigue, lack of energy, illness, medication, stress

Stress

physical and emotional response, perceived threat, challenge, acute, chronic, anxiety, depression, fatigue

Drugs

Migraine

Episodic disorder, recurrent attacks of pulsating (unilateral) headache

headache, moderate to severe pain, nausea, vomiting, sensitivity to light and sound, stress, hormonal changes, rejection to foods and drinks

Neurological (aura) and gastrointestinal symptoms. Vascular phenomena and serotonin ↑ migraines

initial vasoconstriction of intracranial arteries, followed by reactive vasodilation

Preventive treatment: avoid triggering factors

Prophylactic drugs: beta-blockers, calcium antagonists, tricyclic antidepressants, antiepileptics, and serotonin antagonists

- Sedative and antispasmodic plants
- Analgesic and anti-inflammatory plants
- Feverfew and butterbur are useful
- Petasins has a spasmolytic effect

Matricaria (feverfew)

part: aerial part, sometimes only leaves

improve migraines evolution, frequency and intensity

active ingredients: parthenolide (sesquiterpene lactone)

action: antimigraine, antiplatelet, anti-inflammatory, analgesic, and antimicrobial

adverse effects: at high doses can give mouth ulcers, contact dermatitis, rebound headaches, insomnia, abdominal pain, diarrhoea, nausea or vomiting, mucosal and tongue inflammation

interactions: effects of antiplatelet and oral anticoagulant drugs

contraindications: hypersensitivity to matricaria, pregnancy, lactation, and under 18 years of age

posology: daily dose for migraine prevention is 50-120 mg of powdered drug (0.2-0.6 mg parthenolide). 4-6 months to observe a beneficial effect, gradually ↓ dose at the end

Ginseng root

part: roots of at least 6 years

White ginseng: removal of external layers, washing and sun-drying.

Red ginseng: steamed, artificially dried or sun-dried.

active ingredients: ginsenosides (2-3%) - tetracyclic and pentacyclic triterpene saponins; heterogeneous polysaccharides (panaxans A-U)

action: adaptogen, stimulant, ↓ fatigue, ↑ memory, blood pressure regulation, hypoglycemic, hypolipidemic, estrogenic, immunostimulant, antioxidant

adverse effects: insomnia, nervousness, hypertension, skin rashes, morning diarrhea, estrogenic effects

interactions: effects of MAOIs, oral antidiabetics, oral anticoagulants, antiplatelet agents, digitalis, estrogens, corticosteroids

contraindications: cardiac disorders, hypertension, anxiety, nervousness, pregnancy, lactation, children.

posology: 1-2 g/day of drug, max 3 months (3-4 weeks effects), don't take before going to sleep.

