

Herb (botanical name)	Interaction/Side effects (SE)
Agrimony	warfarin ↓ INR → herb may be a coagulant SE: photo dermatitis
Alfalfa (Medicago sativa)	cholesterol meds → herb may further ↓ lipid levels cyclosporin/steroids → ? herb immuno-stimulating hypoglycemic meds → herb may cause further hypoglycemia warfarin ↑↓ INR → herb may contain warfarin constituents or ↓ effect because of Vitamin K content in herb SE: rare pancytopenia & worsening of lupus CI: Lupus
Aloe (Aloe vera)	digoxin & thiazide ↑ cardiac toxicity → due to electrolyte imbalance Not recommended with breastfeeding. SE: contact dermatitis
Angelica	warfarin ↑ INR → herb may contain warfarin constituents Not recommended with breastfeeding. SE: photo dermatitis
Anise (Aniseed)	MAOI's → herb may ↑ risk of hypertensive crisis warfarin ↑ INR → herb may contain warfarin constituents
Aristolochia	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect SE: nephrotoxic
Arnica (Wolf bane)	warfarin ↑ INR → herb may contain warfarin constituents
Asafoetida	warfarin ↑ INR → herb may contain warfarin constituents- in vivo
Ayurvedic syrup	phenytoin → herb may ↓ phenytoin levels as well as ↓ efficacy SE: heavy metal poisoning from contamination
Betel nut (Areca catechu)	antipsychotics → herb may ↑ extrapyramidal SE (strong cholinergic effects); asthmatics → inadequate control of asthma
Black cohosh (Cimicifuga racemosa) Remifemin 20mg bid	hormones → herb may have estrogen-like effect. Dose: 40-80mg/day. iron → herb contains tannic acids which may ↓ iron absorption warfarin ↑ INR → herb may contain salicylates SE: For menopausal symptoms → may cause mild GI effects & ↓ BP
Bladderwrack (Fucus, Kelp)	warfarin ↑ INR → herb may have anticoagulant action levothyroxine → herb is a source of iodine → caused hyperthyroidism
Bogbean	warfarin ↑ INR → herb may have hemolytic activity
Borage	antipsychotics/anticonvulsants/TCA's → herb may ↑ seizures amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect. Generally unsafe
Broom	Antihypertensive meds → herb may ↑ BP by itself
Calamus	Sedatives → herb may potentiate sedation. Generally unsafe
Chalcium (Capsicum) (Chili peppers)	MAOI's → herb ↑ risk of hypertensive crisis SE: dermatitis, GI upset. ACE inhibitor → may ↑ cough ; theophylline → may ↑ absorption
Cascara (Rhamnus purshiana)	Various meds → ↓ absorption since going quicker via GI system Digoxin/thiazides/steroids → herb may potentiate hypokalemia
Cassia	warfarin ↑ INR → herb may inhibit platelet aggregation
Celery (seed/extract)	warfarin ↑ INR → herb may contain warfarin constituents sedatives → herb may potentiate sedation. Herb → ? diuretic action.
Cereus	MAOI's/SSRI's/TCA's → herb may ↑ risk of serotonin syndrome
Chamomile (Natricaria reutita) (German/Roman)	warfarin ↑ INR → herb may contain warfarin constituents iron → herb contains tannic acids which may ↓ iron absorption sedatives → herb may potentiate sedation
Chaparral (Larrea tridentata)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect. Generally unsafe
Chinese herb mixture	Rare: heavy metal exposure due to contamination
Chondroitin 1200mg/day	warfarin ↑ INR → herb may increase bleeding & chondroitin sulfate is a component of the antithrombotic danaparoid SE: GI. Poor oral absorption ~<10%, IM form in other countries.
Chromium picolinate	nephrotoxic drugs → herb may ↑ renal failure & rhabdomyolysis hypoglycemics → herb may cause hypoglycemia
Clove	warfarin ↑ INR → herb contains eugenol - a platelet inhibitor
Coltsfoot (Tussilago farfar)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect. Not rec. with breastfeeding
Comfrey (Symphytum species)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect. Generally unsafe FDA 2001
Co-enzyme Q10 (Ubiquinone)	betablockers, phenothiazines, TCA's, doxorubicin → herb may ↓ cardiac side effects from these medications cardiac & antihypertensives → may improve effect of cardiac meds HMG-Co A & hypoglycemics → may ↓ natural levels of Q10 in body warfarin ↓ INR → herb may decrease effect of warfarin
Couchgrass	diuretics → herb may ↑ potassium loss; lithium → herb may alter level. sedatives → herb may potentiate sedation
Dandelion	diuretics & lithium → herb may ↑ diuretic effect & ↑ lithium toxicity warfarin ↓ INR → ↓ effect due to Vitamin K content in the herb
Danshen	warfarin ↑ INR → clinical bleed due to ? acetylsalicylic acid
Dehydroepian-drosterone-DHEA	warfarin ↑ INR → herb may have fibrinolytic potential. triazolam level can ↑ due to DHEA. Banned by the NBA.
Devil's Claw (Harpagophytum procumbens)	heart & blood pressure meds → herb may interfere (↑↓) with BP hypoglycemics → herb may cause hypo/hyperglycemia warfarin → purpura SE: headache, ringing ears, ↓ appetite, ↓ taste
Dong Quai (Angelica sinensis)	heart meds → herb has quinidine like activity warfarin ↑ INR → herb ? contain warfarin constituent. Case reports Not recommended with breastfeeding. SE: photosensitive

Echinacea (P)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity if used for > 8 weeks
Purple coneflower	corticosteroids/cyclosporin → avoid combination glycemic control → herb may cause hypo/hyperglycemia warfarin ↑ INR → herb in vitro ? ↑ INR → by ↓ warfarin metabolism SE: Often used for 2 weeks for an acute infection but can cause allergic reaction, tiredness, somnolence, dizziness, headache & GI upset. CI: HIV, TB, transplant pts, RA, MS, lupus → herb immunostimulant
E. purpurea, pallida & angustifolia	sedatives → herb may potentiate sedation
Elecampane	anticonvulsants → herb may cause seizures
Ephedra (Ma huang) (P)	caffeine, decongestants, stimulants → herb may ↑ nervousness & tremor
Herbal Ecstasy	heart & blood pressure meds → herb may ↑ heart rate & BP
Ephedrine/ Pseudoephedrine (Ban in olympics) ?-1% ephedrine. Tea-15-30mg ephedrine/cup.	hypoglycemics → herb may cause hypo/hyperglycemia SE: Used in many weight loss or energy products but over 800 reports of nervousness, insomnia, irritability, psychosis, headache, dizziness, seizures, stroke , premature ventricular contraction, hypertension, myocardial infarction & death . FDA maximum: 8mg/dose & 24mg/day for no more than a week. Not recommended with breastfeeding. NOT considered SAFE
Evening Primrose oil (Oenothera biennis)	anesthetics/antipsychotics/anticonvulsants → herb ↑ seizures SE: For menopause but can cause nausea, headache & soft stools
Fenugreek	warfarin ↑ INR → herb may contain warfarin constituents
Feverfew	iron → herb contains tannic acids which may ↓ iron absorption NSAIDS/STEROIDS → may ↓ the therapeutic effect of feverfew warfarin ↑ INR → herb in vitro ? inhibit binding of platelets Recommend 0.2% but most products contain <0.1% parthenolide SE: Often used for migraine headaches but can cause gastric discomfort, oral ulcers, lip & tongue swelling & rebound headache when herb stopped. Not recommended with breastfeeding.
Tanacet 125mg daily (Tanacetum parthenium)	
Flaxseed	warfarin ↑ INR → herb may ↑ bleeding time (Linum usitatissimum)
Garlic (Allium sativum) (P)	antihypertensive meds → this herb may ↓ BP thus caution advised aspirin/warfarin ↑ INR → ajoene, a product of alliin breakdown is believed to be responsible for reversible inhibition of platelet aggregation- clinical bleeding has occurred (Case reports) hypoglycemics → herb may cause hypoglycemia; sacuinavir → ↓ level SE: Often used for hypertension & high cholesterol but can cause burning sensation, nausea, heartburn, menorrhagia, diaphoresis, lightheadedness, odoriferous skin & breath & contact dermatitis.
Active agents: allicin & ajoene Need high doses to work. Only short 3hr half life & acid labile → enteric coated better	
Germander (Teucrium chamaedrys)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect Generally considered unsafe- 30 cases of acute liver failure .
Ginger (Zingiber officinale)	heart & antihypertensives → herb may ↑ or ↓ effect with these meds hypoglycemics → herb may cause hypoglycemia warfarin ↑ INR → herb may inhibit platelet aggregation (in vitro) SE: Used for antiemetic but cause heart burn & allergic reactions.
Ginkgo biloba (P) (Maidenhair Tree)	acetaminophen & ergotamine/caffeine → subarachnoid hemorrhage & subdural hematoma anticonvulsant/TCA/trazodone → may ↓ seizure threshold → ↑ seizures aspirin/clopidogrel/dipyridamole/ticlopidine/warfarin ↑ INR → ginkgolide B may inhibit platelet activating factor by displacement from its receptor binding sites (Case reports) thiazides → with herb may lead to hypertension (1 case) SE: Often used to help circulation & cognition but may cause headache, dizziness, restlessness, nausea, vomiting, diarrhea & dermal sensitivity.
Ginseng, Eleuthero or Siberian (Eleutherococcus senticosus)	digoxin → herb may ↑ digoxin serum level (? Maybe assay interference with level or from contaminated P. sepium) heart & blood pressure meds → herb may change BP ↑ heart rate warfarin ↑ INR → herb ? ↓ platelet aggregation & contain coumarin Not recommended with breastfeeding.
Ginseng, American (Panax quinquefolius) (P)	alcohol → may ↑ alcohol clearance from the body corticosteroids → herb may affect steroid concentrations heart & blood pressure meds → herb has negative chronotropic & inotropic activity, as well as possible ↓ blood pressure estrogens/corticosteroids → herb may have possible additive effects (reported mastalgia & postmenopausal bleeding) furosemide → case report of diminishing furosemide effect hypoglycemics → herb may have additive hypoglycemic effect MAOI's → may inhibit reuptake of various neurotransmitters & ↑ tremor/ mania thus contraindicated mood stabilizers → herb may induce mania oral contraceptives → herb may interfere in effectiveness of sex hormone treatment sedatives → herb may potentiate/antagonize sedative side effects warfarin ↑ ↓ INR → herb may cause reduction of blood coagulation or ↓ INR (Case reports)
Korean/Asian (Panax ginseng)	SE: in general for ALL species: nervousness, excitation, diarrhea, insomnia, inability to concentrate, headache, hypertension, epistaxis, allergies & skin eruptions. Not recommended with breastfeeding
Only 25% of ginseng products actually contained ginseng in a recent study, plus 85% did not contain ginseng in a 1990 survey.	
Glucosamine ~500mg po tid	hypoglycemics/insulin → ? herb may ↑ glucose or insulin resistance. Well absorbed ~90%. Inj avail other countries. Some efficacy Arch Int Med Jul 03 SE: For osteoarthritis but may cause GI side effects such as diarrhea.

Goldenseal (Hydrastis canadensis)	heart & antihypertensives→herb can alter heart & blood pressure heparin → herb can oppose the action of heparin sedatives→ herb may ↑ sedation. Expensive & often adulterated.
Gotu kola	sedatives→ herb may ↑ sedation statins → herb may ↑ lipids
Green tea	iron→ herb contains tannic acids which may ↓ iron absorption warfarin ↓ INR → herb may contain ↑ vitamin K content (in vitro). Contains 10-80mg caffeine cup. Lithium level ↑ if stop caffeine.
Guar gum (Cyamopsis tetragonolobus)	digoxin & penicillin V→slows absorption in the stomach glyburide,iron & metformin → ↓ absorption with some formulations SE: rare gastric obstruction. May ↓ cholesterol levels.
Hawthorn (Crataegus monogyna)	digoxin & antihypertensives → herb may interfere with these meds MAOI's → may contain tyramine thus ↑ risk of hypertensive crisis
Hops	sedatives → herbs may ↑ sedation; herb has estrogen like chemicals
Horse chestnut	aspirin & warfarin ↑ INR → herb may contain warfarin constituents SE: irritant to stomach & hypoglycemia (Aesculus hippocastanum)
Horseradish	warfarin ↑ INR →peroxidase stimulates arachidonic acid metabolites
Indian snakeroot	antihypertensives & digoxin→ herb can ↑ effect antidepressants → herb can ↓ effect (reserpine found in herb)
Jamaican Dogwood	sedatives→ herb may potentiate sedative SE
Karela (Bitter melon)	hypoglycemics → herb may affect blood glucose levels
Kava kava (P) (Piper methysticum)	alcohol/antipsychotics/sedatives→ herb may ↑ sedation alprazolam /benzodiazepines→ has led to additive depression (Case report of ↑lethargy/?coma with alprazolam) antiparkinsonian meds→herb may exacerbate Parkinson's-case report SE: Often used for anxiolytic but causes headache,dizziness,GI discomfort & local numbness after oral ingestion; dry scaly skin & discoloration (yellow) , leukopenia, thrombocytopenia , photosensitivity & eye redness with long term use or high dosages. Reports of hepatotoxicity FDA Mar'02. Not recomm. with breastfeeding
-a social drink in South Pacific	
Kelp	levothyroxine→herb source of iodine→caused hyperthyroidism
Kombucha	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect.Source of anthrax outbreak.
Kyushin	digoxin→herb may interfere with dynamics/monitoring
Life root (Senecio aureus)	amiodarone, anabolic steroids, ketoconazole, methotrexate→ herb may have additive hepatotoxicity effect. Generally unsafe
Licorice (Glycyrrhiza glabra)	antihypertensives/digoxin/loop diuretics/spironolactone/thiazides → herb may cause hypokalemia , plus sodium & fluid retention which can ↑ blood pressure (ie. Pseudoaldosteronism) corticosteroids→herb may ↑ oral & topical steroid effects digoxin→herb may interfere with pharmacodynamically/monitoring hypoglycemics → herb may cause ↓ glucose tolerance thus caution oral contraceptive→ may lead to hypertension,edema & ↓ potassium warfarin ↑ INR → herb may inhibit platelet activity SE: lethargy, headache & electrolyte imbalances. Not recommended with breastfeeding. Generally unsafe
High dose is >50 grams/day	
Most licorice in the USA contains anise oil rather than licorice.	
Meadowsweet	warfarin ↑ INR → herb may contain salicylate constituents
Melilot (Sweet clover)	warfarin ↑ INR → herb may contain warfarin constituents
Milk thistle (Silybum marianum)	hypoglycemics → herb may have additive hypoglycemic effect SE: Gastric pain, diarrhea, vomiting & allergic reactions. In Europe available IV to "detoxify the liver".Oral ~25% absorbed.
Mistletoe	warfarin ↓ INR → herb may contain lectins → ↓ agglutination
Nettle	iron→ herb contains tannic acids which may ↓ iron absorption sedatives→ herb may potentiate sedation warfarin ↓ INR → herb may contain Vitamin K
Papain/Papaya	warfarin ↑ INR → may ↑ INR (Carica papaya) SE: gastritis
Parsley	antihypertensives→ herb has sympathomimetics→watch for ↑ BP MAOI's → herb ↑ risk of hypertensive crisis.Herb may contain Vit K
Passionflower	MAOI's/SSRI's/TCA's→herb may ↑ risk of serotonin syndrome sedative → herb ↑ sedation;warfarin ↑ INR→may contain coumarins
Pennyroyal (Mentha pulegium)	amiodarone, anabolic steroids, ketoconazole, methotrexate → herb may have additive hepatotoxicity effect (? Treat → acetylcysteine)
Plantain (Black psyllium)	carbamazepine/digoxin/iron/lithium/warfarin→ ↓ absorption by herb digoxin→herb may interfere with absorption/dynamics/monitoring
Plurisy root	MAOI's → herb ↑ risk of hypertensive crisis
Poplar	warfarin ↑ INR → herb may contain salicylate constituents
Prickly Ash	warfarin ↑ INR → herb may contain warfarin constituents
Psyllium(P.ovata)	carbamazepine/digoxin/iron/lithium/warfarin→ herb ↓ absorption
Quassia	warfarin ↑ INR → herb may contain warfarin constituents
Red Clover (Promensil)	oral contraceptive→ herb may ↓ effect. Made cheetah's sterile. warfarin ↑ INR → herb may contain warfarin. SE: rash
Royal jelly	asthma medications→ herb may cause bronchospasm Expensive source of "B" vitamins. Food for queen bee.
Sage	sedatives→ herb may potentiate sedation

Web links: //vm.cfsan.fda.gov/~dms/supplmnt.html //nccam.nih.gov
 www.ars-grin.gov/duke www.quackwatch.com www.ncahf.org
 www.herbmed.org www.consumerlab.com www.drugfacts.com
 www.naturaldatabase.com www.mskcc.org/aboutherbs

Saiboku-to Asian herb mixture	corticosteroids→herb may ↑ prednisolone levels Same herbs→ sho-saiko-to ,Poria cocos,Mangolia officinalis&Perillae frutescens
Sassafras	SE: sedation. Generally considered unsafe (S. albidum)
Sauropus androgynus	amiodarone, anabolic steroids, ketoconazole & methotrexate→ herb may potentiate hepatotoxicity
Saw palmetto (Serenoa repens)	estrogen/contraceptives/hormones → herb may have anti-androgen & estrogenic activity iron→ herb contains tannic acids which can ↓ iron absorption SE: Often used for benign prostatic hyperplasia but causes headache , GI discomfort(nausea, abd pain, constipation & diarrhea) & rare hormonal actions (breast tenderness, loss of libido & venous thrombosis). Efficacy: ≤ Proscar but likely < than ≈1 blockers
Sabal fruit	May cause false negative PSA test
Scullcap	amiodarone, anabolic steroids, ketoconazole, methotrexate→ herb may have additive hepatotoxicity effect (? due to adulterants) sedatives → herb may potentiate sedation
Senna (Cassia senna)	digoxin/thiazides/steroids→ herb may potentiate hypokalemia various meds→ ↓ absorption→going quicker via GI system
Shankapulshpi	phenytoin→herb may ↓ phenytoin levels as well as ↓ efficacy (Ayurvedic mixed herb syrup)
Shepherds Purse	MAOI's→ may contain tyramine thus ↑ risk of hypertensive crisis sedatives→ herb may potentiate sedation
Sho-saiko-to	prednisolone→↓ levels for prednisolone (Asian herb mixture)
St. John's Wort (Hypericum perforatum)	antihypertensive meds→ this herb may ↓ BP thus caution advised barbiturates→ herb may ↓ barbiturate induced sleeping time cyclosporin/digoxin/fexofenadine/indinavir/midazolam/nevirapine/omeprazole/oral contraceptives/sumatriptan/theophylline/warfarin →herb may ↓ levels of these drugs via ↑ metabolism (P450 3A4 inducer) iron→ herb contains tannic acids which can ↓ iron absorption MAOI's/SSRI's/TCA's→herb may ↑ risk of serotonin syndrome (6 case reports-tremor, delirium...) by ↑ serotonin levels plus since MAOI action → restriction tyramine food is wise. narcotics → may prolong narcotic induced sleeping time piroxicam/tetracyclines→ can ↑ photosensitize reaction sedatives→ herb may potentiate sedation SE: Often for mild to moderate depression but may cause allergic reactions, headache, dizziness, restlessness, fatigue, dry mouth, nausea, vomiting, constipation,dreams, hair loss & photosensitivity & possible uterotonic activity . Possible cataract link thus rec to wear wrap around sunglasses. Hold for 2 weeks before any surgery.
~300mg po tid	
-not for major depression	JAMA APR 01 & 02
Active agents: 0.3% hypericin & hyperforin (Used commonly -esp. in Germany)	
Only 2/54 products contained within 10% of the labeled amount. C.J.C Pharmacol 2003	
Tamarind	aspirin→ ↑ bioavailability of aspirin (Tamarindus indica)
Tonka Bean	warfarin ↑ INR → herb may contain warfarin constituents
Umbelliferae	warfarin ↑ INR → herb may contain dicumoral constituents
Uzara root	digoxin →herb may have additive effects or interfere with monitoring
Valerian (P) (Valeriana officinalis)	sedatives→ herb may potentiate sedation Possible acute hepatitis reported (? Due to adulterants). SE: Often used for sedative & anxiolytic action but may cause headache, excitability, ataxia & gastric complaints. (Case report of withdrawal syndrome involving cardiac abnormalities & delirium)
Verbena(Vervain)	MAOI's → herb ↑ risk of hypertensive crisis
Vitamin E	warfarin ↑ INR → herb may ↓ platelet aggregation.In sunflower seeds .
Wild Carrot	sedatives→ herb may potentiate sedation
Wild Lettuce	sedatives→ herb may potentiate sedation
Willow/Wintergreen	warfarin ↑ INR → herb may contain salicylate constituents
Woodruff	warfarin ↑ INR → herb may contain warfarin constituents
Yarrow	warfarin ↓ INR → herb may be a coagulant in vivo
Yohimbe (Pausinystalia yohimbe)	clonidine & antihypertensives→herb may ↑ BP since is α 2 blocker TCA antidepressants →herb may ↑ risk of hypertension SE: nervousness, tremor, headache, dizzy, flushing & nausea
Xaio chai hu tang	corticosteroids→herb may ↓ blood level of prednisolone

Unsafe Herb list: (American Journal Health System Pharmacy, Jan 15/1999)
 borage,calamus,chaparral,coltsfoot,colmfrey,ephedra,germander,licorice,life root,sassafras
Potentially safe herb but still interactions: (American Journal Health System Pharmacy, Jan 15/1999)
 feverfew, garlic, ginkgo, ginseng-Asian, saw palmetto, St. John's wort, valerian
Frequently Allergic reactions with: (American Journal of Medicine, Feb 1998)
 Agnus Castus,Angelica,Aniseed,Apricot,Arnica,Artichoke,Asafetida,Boneseed,Cassia,Celery, Cinnamon,Cowslip,Dandelion,Elecampane,Euphobia,Feverfew,Fucus,Gravel Root,Gaicum, Holy Thistle,Hops, Hydrangea,Juniper,Lady's Slipper,Meadowsweet,Motherwort,Parsley, Pilewort,Plantain,Pulsatilla,Rosemary,Royal Jelly,Tansy,Wild Carrot, Yarrow

Natural medicine does **NOT** guarantee SAFETY. **1/4 of all modern drugs** have a natural/botanical origin. Medicinal herbs are drugs with potential harm & benefit! Concerns regarding **purity, potency & quality** are especially important in the herbal industry. A sample of 2609 sample of traditional Chinese medicines collected from 8 hospitals in Taiwan, 23.7% contained pharmaceutical **adulterants**, most commonly **acetaminophen, caffeine, hydrochlorothiazide, indomethacin & prednisolone**.^{5,7} Other NSAIDS & benzodiazepines found in Chinese patent medicines sold outside Asia⁶. In 24 of 251 Asian patent medicines there was **lead**; 36 **arsenic** & 35 contained **mercury**.⁹ Like all drugs there are some **serious side effects & interactions that occur**.

References: 1. Hansten and Horn's Drug Interactions Analysis and Management 2003. 2. AHFS Drug Information 2003. 3. American Family Physician Mar 1/1999. 4. CPS - Product Monographs, 2003. 5. J Clin Pharmacol 1997;37:344-350. 6. Arthritis Rheum 1995;38:614-617. 7. BMJ 1994;308:1162. 8. The Lancet 2000;355:134-138. 9. NEJM 1998 339:847. 10. Pharmacy Practice June 1999 & June 2000 11. Natural Medicines Comprehensive Database 2003. 12. Review of Natural Products 2003.
 BP-Blood pressure CI-Contraindication GI-Gastrointestinal INR-international normalization ratio (ie. bleeding risk)
 (P)-a concern if given pre-op (JAMA July 11/2001) SE-side effect

Additional references:

De Smet PA. Herbal remedies. N Engl J Med. 2002 Dec 19;347(25):2046-56.