Pregnancy & Lactation Guide for Tai Sophia Herbal Medicine Clinic

P1 – safe during pregnancy
P2 – restricted use during pregnancy
P3 – contraindicated during pregnancy
L1 – safe during lactation
L2 – restricted use during lactation
L3 – contraindicated during lactation

Sources in parentheses – see key at bottom of each page

Methodology: Each herb was looked up in each of the 13 sources listed below and given a rating based on a synthesis of the information. Although every source was consulted for each herb, information from a source may not have been included in cases when information from one of the other sources obviously surpassed it in thoroughness and accuracy, or when a particular source used another source as its reference.

Notes on Ratings:

1. If sources disagreed on the safety of the herb, it was often given a restricted, but not contraindicated categorization and reasoning from both sources was included. In some cases of disagreement a choice was made to categorize as safe or contraindicated based on the editor's opinion that information from certain sources was of higher value than others. In these cases, contradictory information is always included. Even when most sources agree on the safety of an herb during pregnancy or lactation, there is always at least 1 source with a more conservative opinion to avoid its use, so for the conservative practitioner, even P1/L1 designations should be looked at closely.
2. In cases where there is a lack of information, certain sources qualify that as presumed to be **safe**, while other sources qualify that as presumed to be **unsafe**. These herbs were also given a restricted, but not contraindicated rating, and the information from both sources was included.
3. The American Herbal Products Association (AHPA)'s Botanical Safety Handbook uses the classification of "class 1" to designate herbs that can be safely consumed when used appropriately. This language has been included, but does not necessarily correspond to P1/L1 ratings.
4. Even with P1/L1 rated herbs, attention should be paid to dosage, as some are considered safe in regular dietary amounts, but unknown in higher dosages.
5. Herbs were put into the P2/L2 category for a variety of reasons: unsafe for internal use, but safe for external use, unsafe during 1st trimester pregnancy, but useful in 3rd trimester or during labor, generally contraindicated during pregnancy, but specifically indicated to prevent miscarriage, unsafe during early breastfeeding, but likely safe during later stage nursing, etc. P2/L2 was also used when the herb's safety must be based on judgment of the specific situation.

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
3. Romm, A. (2010). *Botanical medicine for women's health.* St. Louis, MO: Elsevier Churchill Livingstone.
4. Natural Medicines Comprehensive Database, http://naturaldatabase.therapeuticresearch.com
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6. Braun, L. & Cohen, M. (2007). *Herbs & natural supplements, An evidence-based guide (2nd ed).* Chatsworth, NSW: Elsevier Australia.
7. Brinker, F. (2010). *Herbal contraindications and drug interactions, Plus herbal adjuncts with medicinces (4th ed).* Sandy, OR: Eclectic Medical Publications.
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10. Natural Standard; The Authority on Integrative Medicine, www.naturalstandard.com
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13. Felter, H.W. & Lloyd J.U. (1898). *King's American Dispensatory*. Sandy, OR: Eclectic Medical Publications (1983).

*Achillea millefolium,*Yarrow

P3 – avoid in pregnancy (3,7) because of thujone content and purported abortifacient activity (3), traditionally used as emmenagogue and uterine stimulant (1) evidence of increased fetal damage and abortifacient effects in animal studies, may relate to high levels of thujone, no evidence of harm in humans (2), a study on rats showed decreased fetal weight and increased placental weight when administered yarrow at 56 times the normal daily human dose, there were no effects on pre or post-implantation indicating no contraceptive or abortive effects (10), infusion of leaves taken by Blackfoot and other tribes when labor pains started and to ease the delivery, also to expel the afterbirth (11), topical use on unbroken skin should not pose a problem (Ed.)

L2 – avoid excessive amounts, insufficient data (2,4,7), poultice of leaves applied to chest by Kwakiutl for hardened breasts after childbirth (11)

Acorus calamus, Calamus

P3 – American diploid asarone-free variety = class 1, Asian & European triploid & tetraploid varieties containing asarone are not to be used during pregnancy (1), avoid in pregnancy due to emmenogogue effect (empirical), asarone found in European and Asian varieties has a genotoxic effect (7), Delaware, Menominee, Mohegan, & Sioux people, used for suppressed menses, infusion of ground roots taken after childbirth by Algonquin (11), sterility occurred in male houseflies with exposure to vapors of the oil (10)

L3 – likely unsafe (4,10)

Actaea racemosa, Black Cohosh

P2 – avoid during first trimester of pregnancy due to emmenagogue effect (empirical) and uterine stimulant effect (speculative) (1,7), used to stimulate menstruation by Cherokee (11), potential toxicity in large doses (empirical) (7), large doses may cause vertigo, headache, nausea, impaired vision, vomiting, and impaired cirulation (1), no evidence of mutagenic or genotoxic activity (12), only to be used to assist with labor or as a *partus preparator* in the final weeks of pregnancy, traditionally used by Eclectics as a *partus preparator* and for uterine cramping and is still used in this way by midwives today (2,3), used by Eclectics during labor when the pains are inefficient, feeble, or irregular to stimulate normal action, was deemed an excellent *partus preparator* when given for several weeks before birth, also used as a diagnostic agent to differentiate between "spurious" and "true labor pains," the latter being increased, while the former are dissipated under its use, considered the best and safest agent for relief of after-pains (13), it is the historical use of black cohosh as a *partus preparator* that has led to modern contraindications for its use during pregnancy, however it was commonly used by the Eclectic physicians, including Cook, Ellingwood, Felter, Howe, and King, for threatened miscarriage, premature labor, and relaxation of a rigid *os uteri* during labor, all of which suggest a uterine antispasmodic effect, though *Viburnum prunifolium* was more specifically indicated for threatened miscarriage, black cohosh was obviously used often during pregnancy and the fact that it was used both to reduce uterine contractions as well as to promote them may be explained by dosage, the Eclectics used low doses for threatened miscarriage and higher doses to induce labor, the higher doses being substantially more than is commonly used by modern midwives and herbalists to assist

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labor, it was considered a very weak oxytocic, requiring large doses to induce labor or abortion, reports on its use by Eclectics suggest very few adverse effects despite its widespread use in pregnancy and birth (3), Ellingwood does note in 1919 six cases of severe uterine hemorrhage following its use during labor and Cook reports in 1869 a rare occurrence of threatened abortion while black cohosh was being used during pregnancy (3,12), black cohosh continues to be used by modern midwives for the prevention of miscarriage and to assist during labor, but clinical trials are fully lacking, Upton reports a cases series involving black cohosh published in 1962 by Gorlich which reported benefits for morning sickness and miscarriage prevention, considering the thousands of case reports cited by Eclectics for its use during pregnancy, the herb deserves further research (3)
L3 – strongly discouraged due to possible estrogenic effect and insufficient data (2,3), though studies on estrogenic activity have been contradictory with more recent studies demonstrating lack of systemic estrogenic effect, the herb does not appear to effect prolactin levels though its effect on prolactin has not been tested with lactating women, the *German Commission E Monographs* do not contraindicate its use during lactation, however there is very little information available on its safety for breastfeeding babies and its effects on milk production (3), used by Iriquois to "promote the flow of milk in women" (11), inappropriate due to potential toxicity in large doses (empirical) and possible hormonal effects (speculative) (7), no indication for long-term use of black cohosh in lactating mothers, but no adverse effects expected (12)

Aesculus hippocastanus, Horse Chestnut

P2 – evidence of decreased fetal body weights in animal studies exist, but clinical studies to treat venous conditions in pregnant women at doses of 600mg (containing 100mg aescin) for 2-4 weeks have been successful (2,3,10), lack of fetal weight gain with very high doses of seed extract given to rabbits, therefore do not use in pregnancy without professional advice (7)
L2 – compatible with breastfeeding, but use caution (2), lack of fetal weight gain with very high doses of seed extract given to rabbits, therefore do not use while nursing without professional advice (7)

Agothosma betulina, Buchu

P3 – contraindicated during pregnancy (1,4), may be abortifacient and stimulate uterine contractions according to traditional use (10), authentic buchu, *Agothosma betulina*, is considered likely safe in pregnancy (speculative), other species which are often substituted have high pulegone contents which acts as a mucosal irritant and uterine stimulant, therefore it is contraindicated during pregnancy (7)
L3 – likely unsafe, insufficient data, contains pugelone which is hepatotoxic (4), essential oil may pass through the breastmilk to the infant with unforeseen consequences (7)

Agrimonia eupatoria, Agrimony

P2 –possibly unsafe, possible effects on menstrual cycle (4,10), class 1 (1), highly valued in the treatment of "obstructed menstruation" by the Eclectics (13)
L2 – possibly unsafe, possible effects on menstrual cycle (4,10), class 1 (1)

Albizia lebbek, Albizia

Sources:
1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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13. Felter, H.W. & Lloyd J.U. (1898). *King's American Dispensatory*. Sandy, OR: Eclectic Medical Publications (1983).

P3 – contraindicated during pregnancy (3), no adverse effects expected (9), animal research shows inhibition of ovulation, sperm count, & sperm motility (10)
L3 – avoid during breastfeeding, lack of information (10)

Alchemella xanthochlora, Lady's Mantle
P2 – insufficient reliable data, avoid using (4), traditionally used as conception aid (10), class 1 (1), limited data (3)
L2 – insufficient reliable data, avoid using (4), class 1 (1), limited data (3)

Allium sativum, Garlic
P1 – no proven increase in the frequency of malformation or other harmful effects on the fetus despite consumption by a large number of women (2,3,5), increase in uterine activity shown *in vitro* therefore caution should be taken during pregnancy in medicinal doses, no adverse effects expected from dosages found in food consumption (3), a small clinical trial observed that garlic ingestion by pregnant women significantly alters the odor of their amniotic fluid and garlic has been noted on more than one occasion on the breath of newborn Pakistani infants (2), AGE (Aged Garlic Extract) is an ingredient in a Japanese pharmaceutical product that is used for pregnant & lactating women (5), however large doses of fresh raw garlic or allicin-releasing products should not be consumed during pregnancy to avoid bleeding complications (2,6,7,10), although the actual risk of bleeding is uncertain, it is prudent to discontinue medicinal dosages of garlic 3 weeks prior to due date to minimize increased risk of bleeding, there is insufficient evidence to recommend increased garlic intake for prevention of preeclampsia (3), a single case report of platelet dysfunction in an 87 year old was reported after chronic consumption of 2g/day fresh cloves (1), theoretical concern of increased risk of bleeding, uterine stimulant activity reported in early research (10)
L1 – compatible with breastfeeding in usual dietary amounts, garlic ingestion significantly and consistently increased the perceived intensity of the milk odor, which peaked in strength 2 hours after ingestion; babies detected theses changes, as indicated by increased time of attachment, more suckling, and tendency to ingest more milk (2,5,10), a follow-up study showed that the novelty wore off as infants got accustomed to the flavor and they returned to their usual feeding patterns (3), caution while nursing, oral administration of fresh garlic to children is said to be dangerous and even fatal (1), the daily diet of many countries contains enough garlic to be considered "medicinal," garlic is used as a galactagogue in India, the internal use of garlic by the mother should be considered in cases of breast candidiasis (3)

Althaea officinalis, Marshmallow
P1 – class 1 (1), no increase in frequency of malformation or other harmful effects on fetus from limited use in women, animal studies lacking (2)
L1 – class 1 (1), compatible with breastfeeding (1,2)

Ammi visnaga, Khella
P3 – contraindicated in early pregnancy due to emmenagogue effect (empirical) and uterine stimulant activity of its constituent khellin (*in vitro* or in animals) (7)

Sources:
1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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L3- insufficient data, avoid use (4)

Andrographis paniculata, Andrographis

P3 – avoid use in pregnancy due to its abortifacient effects (empirical), antifertility effect in female mice at high doses, and fetal damage (in animals) (7), not recommended, conflicting evidence (2,6), possible contraceptive effects (10), the antifertility effect in female mice (albeit in high doses) suggests it should not be used during pregnancy, especially during 1st trimester (8)

L3 – not recommended, insufficient data (2,6)

Anemopsis californica, Yerba mansa

P2 – insufficient reliable data, avoid using (4), class 1 (1), limited data (3)

L2 – insufficient reliable data, avoid using (4), class 1 (1), limited data (3)

Angelica archangelica, Angelica

P3 – not to be used during early pregnancy due to its emmenagogue effects (empirical) (1,7)

L2 - insufficient reliable data, avoid using (4)

Angelica sinensis, Dong quai

P3 – contraindicated during pregnancy, potential stimulation or relaxation of the uterus, anticoagulant effects (1,2,3,7,10), due to blood quickening properties it should not be employed in women with a history of spontaneous abortion or during 1st trimester pregnancy, while TCM does employ its use in both these situations it is never used alone and should only be used with proper TCM diagnosis (12)

L2 – compatible with breastfeeding (2), but it has been seen to cause skin rash in the infant of nursing mothers consuming the decocted herb (3)

Arctium lappa, Burdock

P2 – uterine stimulation shown *in vivo* though it has not been shown clinically, however medicinal dosages of burdock should be avoided during 1st trimester (3), excessive internal use should be avoided in pregnancy (speculative) due to its oxytocic effect (empirical) and uterine stimulant action (*in vitro* or in animals) (7), likely safe, but potential uterine stimulant activity exists (unclear whether research was in vitro or in vivo) (2), best avoided during 1st trimester due to anthraquinone glycosides, as well as oxytocic and uterine stimulant activities observed in animals (10), cooked burdock root eaten as a food should not pose an issue, though one may want to limit its consumption during 1st trimester (Ed.)

L1 – compatible with breastfeeding (2)

Arctostaphylos uva-ursi, Uva-ursi

P2 – two decades of use by midwives in the United States for acute cystitis during pregnancy has resulted in no adverse reports (3), use during 1st trimester should be limited to acute short-term treatment of 4 days, many secondary sources raise concerns of potential to stimulate uterine contractions, but these claims appear to reflect no actual clinical experience or observation, urinary tract infections alone may cause uterine contractions during pregnancy and it is possible that the concern is not based on pharmacology of uva ursi itself (12) contraindicated by other sources due to

Sources:

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unsubstantiated oxytoxic references and hydroquinone (derivative of arbutin) fetotoxicity (3), Mills & Bone give it a category C rating: has caused or is associated with a substantial risk of causing harmful effects on the foetus or neonate without causing malformations, citing theoretical risk to fetal development due to uterotonic properties of arbutin *in vivo* while noting that arbutin is found in several foods – wheat, pears, coffee, and tea (2), avoid in pregnancy due to oxytocic action (empirical) (1 of the 2 references is from *Hygieia* by Jeannine Parvati [Ed.]), emmenagogue effect (empirical), and the possibility of fetotoxicity (in animals), case report of one woman who consumed uva ursi regularly for 3 years who developed bulls-eye maculopathy, this was likely due to the inhibition of melanin synthesis since arbutin is metabolized to hydroquinone which is known to inhibit the enzyme tyrosine kinase involved in synthesizing melanin (7), concerns regarding fetal toxicity of hydroquinone appear to be exaggerated, at a maximum dose of 12g, at a minimum expected concentration of artbutin of 12%, at 100% solubility and absorbability, the highest potential arbutin concentration per full daily dose would be 1440mg – well below the established NOEL (no observed effect level) of 5250mg of pure hydroquinone daily (12), a slight reduction in maternal body weight gain, decreased fetal weight, increased resorption rate, and reduced fertility in males have been observed in rats orally exposed to hydroquinone via gavage or in the diet (www.epa.gov) (Ed.), large amounts may induce labor (unreferenced) (10), infusion of whole plant and velvet leaf blueberry taken to bring menstruation by Woodlands Cree, but decoction of stems of both plants used to prevent miscarriage and speed a woman's recovery after childbirth (11), in large doses uva ursi may cause emeto-catharsis (13)
L2 – not recommended due to uncertainty whether arbutin and/or its potentially toxic metabolite hydroquinone are present in breast milk (2,7), but if used in the lowest doses and infant is closely monitored, it can be used under the guidance of a qualified health practitioner (3), formal studies of uva ursi preparations in lactating women are lacking, however the effects of hydroquinone was studied on lactating rats and no significant toxicity was evident (12)

Artemisia absinthium, Wormwood

P3 – contraindicated during pregnancy due to its emmenagogue and abortifacient effects (empirical), uterine stimulant activity, thujone content, and substantial risk of causing fetal malformation or damage (1,2,7), the use probably of the oil to induce abortion has reportedly resulted in toxic effects or death with high doses (7), used by Eclectics for amenorrhea (13)
L3 – contraindicated while breastfeeding due to thujone content and its potential toxicity (1,2,7)

Artemisia annua, Sweet Annie

P3 – contraindicated during pregnancy (1,7), animal studies show that semisynthetic derivatives of artimisinin, a constituent of sweet annie, can cause fetal resorption and may be teratogenic during the first trimester (4)
L3 – insufficient reliable data, avoid using (4)

Artemisia vulgaris, Mugwort

P3 – contraindicated during pregnancy (1,3), due to its emmenagogue and abortifacient effects (empirical) and uterine stimulant activity (*in vitro* or in animals), all associated with its thujone content (7), traditionally used as abortifacient (10)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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L3 - insufficient reliable data, avoid using (4)

Asclepius tuberosa, Pleurisy Root

P3 – contraindicated during pregnancy (1), avoid due to potential emetic effect (speculative), uterine stimulant activity (*in vitro*; IV in rabbit, dog, cat), estrogenic activity in rats (7), Delaware people administered to women following childbirth (11)

L3 – possibly unsafe, avoid use while breastfeeding (4)

Asparagus racemosa, Shatavari

P3 – contraindicated in pregnancy due to traditional use as an abortifacient, if using to promote fertility it should be discontinued when pregnancy occurs (3), no increase in frequency of malformation or other harmful effects, animal studies are lacking (2)

L1 – compatible with breastfeeding, used in Ayurveda to promote lactation - 1g/day (2)

Astragalus membranaceous, Astragalus

P1 – no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, no evidence of increase fetal damage in animal studies (2), specific data are lacking, according to one report (Wagner, 1997) it does not have mutagenic effects (12), isolated Astragoliside IV has demonstrated maternal toxicity and fetoxic effects when administered intravenously to rats, there are other species of astragalus which are known to be toxic and are referred to as locoweed (10)

L1– insufficient data available (2), avoid use (4), class 1 (1), specific data are lacking, no limitation is to be expected based on the available pharmacologic and toxicologic literature (12)

Avena sativa, Oats

P1 – class 1, considered safe during pregnancy (1,6)

L1 – class 1, considered safe while breastfeeding (1,6)

Azadirachta indica, Neem

P3 – contraindicated during pregnancy due to abortifacient (4) and anti-implantation effects noted in animal studies (10), neem oil proved spermicidal against rhesus monkey and human spermatozoa *in vitro* and oral administration of neem leaf was shown to have an antifertility effect in mice, it was also shown that neem oil applied intravaginally prior to coitus can prevent pregnancy (Biswas etal, *Biological activities and medicinal properties of neem (Azadirachta indica*). Current Science, Vol 82, Num 11, 2002)

L3 – insufficient reliable data, avoid use (4)

Bacopa monnieri, Brahmi

P1 – no increase in frequency of malformation or other harmful effects from limited use in women, animal studies are lacking, used as a nervine tonic for pregnant women in traditional Ayurvedic medicine (2), insufficient reliable information available (6), limited data (3)

L1 – compatible with breastfeeding (2), limited data (3)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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Baptisia tinctoria, Wild Indigo

P3 – contraindicated during pregnancy (speculative) (1,7), potentially toxic (empirical) (7), large doses are dangerous, acting as an emeto-cathartic (13)

L3 – contraindicated while breastfeeding, potentially toxic (4)

Boswellia serrata, Frankincense

P2 – likely safe in amounts commonly found in foods, insufficient data for medicinal use (4), reports in Indian literature suggest emmenagogue and abortifacient activity (10), class 1 (1)

L2 – likely safe in amounts commonly found in foods, insufficient data for medicinal use (4), class 1 (1)

Bupleurum falcatum, Bupleurum

P2 – contraindicated in pregnancy (no reason given) (3), class 1 (1), no increase in frequency of malformation or other harmful effects from limited use in women, no evidence of increased fetal damage in animal studies (2), no adverse effects expected (8)

L1 – class 1, compatible with breastfeeding (1,2), no adverse effects expected (8)

Calendula officinalis, Calendula

P2 – internal use is contraindicated during pregnancy due to traditional use to affect the menstrual cycle and report of *in vitro* uterotonic activity (3), used in "suppressed menstruation" (13), avoid in early pregnancy due to emmenagogue and abortifacient effects (empirical) (7), class 1 (1), no increase in frequency of malformation or other harmful effects from limited use in women, animal studies are lacking (2), "uterotonic" effect in vitro, anecdotal accounts suggest possible spermicidal and abortifacient effects (10), "in obstetric practice it is of value to relieve burning and smarting after delivery" (13)

L1 – class 1, compatible with breastfeeding (1,2), "relieves to some extent the pain and tenderness of excoriated nipples" (13)

Capsella bura-pastoris, Shepherd's Purse

P3 – contraindicated during pregnancy, uterine stimulant (used by indigenous Bolivians to stimulate uterine contractions at birth), listed as abortifacient in Ayurvedic literature (1,2,7), reported oxytocic activity perhaps due to tyramine content (3), used to promote menstruation in cases of "simple amenorrhea" (13)

L2 – should be avoided if possible due to potential for glucosinolates to taint the milk (2), reportedly caused adverse effects in newborns drinking milk from goats fed glucosinolates (7)

Capsicum annuum, frutescens, spp., Cayenne

P1 – no known restrictions (5), in animal study, capsaicin was not considered a developmental toxicant based on maternal no-observable-effect levels (NOELs) (10), was combined with powder of ipecacuanha to "promptly arrest hemorrhage after parturition" (13)

L1 – no known restrictions (5), dermatitis can sometimes occur in breast-fed infants when mothers ingest foods heavily spiced with capsicum peppers (4,10)

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Caulophyllum thalactroides, Blue Cohosh*

P3 – avoid using during all trimesters of pregnancy, even as a *partus preparator* until further safety information is established (3), the potential teratogenic, embryotoxic, and cardioactive effects indicate that it should never be used during 1st trimester of pregnancy (12), although it has been traditionally used to induce labor (or abortion), there have been case reports of cardiotoxicity in newborns to mothers who had been ingesting blue cohosh (10), 3 case reports have appeared in the literature suggesting severe adverse neonatal outcomes associated with maternal ingestion of blue cohosh as a *partus preparator* and to augment labor, adverse effects include focal motor seizure, myocardial infarction, ischemic stroke, multi-organ hypoxic injury, permanent central nervous system damage, and profound congestive heart failure, a complicating factor of each of these case reports is the births taking place at 40 or 41 weeks which poses its own risks, one of the 3 cases is classified as plausible, while the other 2 are classified as possible (12), the alkaloids found in blue cohosh have been implicated as potential teratogens, while the saponins have been correlated with uterine stimulant activity and allegedly with neonatal cardiotoxicity when used as a *partus preparator* (7,12), rat studies have shown the constituent tapsine may be embryotoxic and N-methylcytisine may be teratogenic (10), used by Cherokee and Potawatomi to promote childbirth (11,12), the "Indian Doctor" Peter Smith reported in 1813 on the Native American use of the herb, which gives the only reference to how it was used and was repeated in Eclectic texts (12): "its use as a parturient originated in the custom of the Indian squaws of employing a decoction of the root for 2 to 3 weeks previous to labor to facilitate child-birth," (12,13), the Eclectics used it to relieve false labor pains and thought to be most valuable to coordinate and strengthen contractions in prolonged labor due to debility and fatigue where the tissues feel full, as if congested (13), until further research is done, it is recommended that the practice of using blue cohosh as a *partus preparator* be abandoned, if it is to be used for labor induction or augmentation, it should only be done at the recommended dosages under the supervision of a qualified maternity health professional with proper fetal and neonatal monitoring, and using tincture preparations which appear to have the lowest concentrations of potentially cardiotoxic glycosides, traditional literature also suggests that blue cohosh was seldom used singularly, but was primarily used in combination with other botanicals which would also reduce the exposure to potentially toxic components (12)

L3 – avoid during breastfeeding, safety unknown (3,10), not to be used by fertile women attempting conception or nursing mothers (speculative) due to potential for teratogenicity in the embryos or toxicity in the infants (7), there is a single case report that associates human and animal birth defects with consumption of milk from a family goat that had been foraging on anagyrine-containing lupines. A human infant was born with congenital "crooked" skeletal malformation, as were a litter of puppies and goat kids. Blue cohosh samples have been found to contain anagyrine in quantities similar to what was found in the lupines ingested by the goat, though it has been proposed that the effect requires metabolism by rumen microflora (12)

*For an extremely thorough understanding of the historical uses of blue cohosh, toxicological data, and the details for adverse cases reports, please read the Amercian Herbal Pharmacopoeia monograph (2012).

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Ceanothus americanus, Red Root

P3 – Iroquois used decoction for suppressed menses and as an abortifacient when fetus is hurt within the first trimester (11), class 1 (1), likely unsafe (4), contraindicated during pregnancy (3)

L3 – class 1 (1), possibly unsafe (4), contraindicated during lactation (no reason given) (3)

Centella asiatica, Gotu kola

P2 – class 1 (1), no increase in frequency of malformation or other harmful effects from limited use in women, no evidence of increased fetal damage in animal studies (2), traditionally used in Bengal as a contraceptive agent, animal studies show an infertility effect at high doses, but an anti-fertility effect does not imply harm during pregnancy (2,10), excessive internal use should be avoided in early pregnancy (speculative) due to its emmenagogue effect (empirical) (7)

L1 – compatible with breastfeeding (1,2)

Chamaelirium luteum, False Unicorn Root

P3 – no increase in frequency of malformation or other harmful effects on fetus from limited use in women, animal studies lacking (2), avoid in pregnancy due to emmenagogue and/or uterine stimulant activity and GI irritant properties (empirical) (1,7), abortifacient (1), although traditionally used to improve fertility, no safety data exists for its use during pregnancy and it has been shown to possess uterine tonic activity, therefore it should be stopped once pregnancy has been achieved (3), used by the Eclectics for amenorrhea, prevention of "repeated and successive miscarriages," and was considered by some to be useful for relief of vomiting associated with pregnancy (13)

L1 – compatible with breastfeeding (2)

Chelidonium majus, Celandine

P3 – avoid in pregnancy since it may cause harmful effects to the fetus (empirical) due to uterine stimulant activity (rats) and uterine stimulant activity of its alkaloids chelidonine, protopine, and cherlerythrine (*in vitro*; IV in cats or mice) (1,7), animal studies showed decreased implantation and smaller litter size (10), contraindicated during pregnancy (3)

L3 – insufficient reliable data, avoid using (4), contraindicated during lactation (3)

Chionanthus virginicus, Fringe Tree

P1 – class 1 (1), no increase in frequency of malformation or other harmful effects on fetus from limited use in women, animal studies lacking, Eclectics used for jaundice during pregnancy (2), limited data (3)

L1 – compatible during breastfeeding (1,2), limited data (3), indicated in "infantile dyspepsia" by Eclectic Physicians (13)

Cinnamomum cassia, Cinnamon

P2 – avoid in large doses during pregnancy (1,3,6,7), "reputed emmenagogue" (13), however usual dietary intakes are likely to be safe, teratogenicity from animal studies is contradictory (6), emmenagogue effects (empirical) of essential oil, potential hepatotoxicity of its extremely high coumarin content (speculative) (7), volatile oil found to be spermatocidal (10), "for post-partum and

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other uterine hemorrhages, it is one of the most prompt and efficient remedies in the Materia Medica" (13)
L2 – avoid use in medicinal amounts during breastfeeding, insufficient evidence (4), usual dietary intakes are likely to be safe (6), "capable of diminishing the secretion of milk" (13)

Citrus sinensis, Sweet Orange
P1 – likely safe (4)
L1 – likely safe (4)

Coleus forskolii, Coleus
P3 – contraindicated during pregnancy (3), insufficient reliable information, avoid using (4), no adverse effects expected (8), another species, *C. barbatos*, caused delayed fetal development and anti-implantation effect (10)
L3 - contraindicated during pregnancy (3), insufficient reliable information, avoid using (4), no adverse effects expected (8)

Collinsonia canadensis, Stoneroot
P2 – class 1 (1), directly indicated for hemorrhoids combined with constipation and hard, pellet-like stools by Eclectics who found it to give "marked relief, especially in pregnant women" (13), insufficient reliable information, avoid use (4),
L2 – class 1 (1), insufficient reliable information, avoid use (4)

Commiphora myrrha, Myrhh
P3 – contraindicated during pregnancy (3), emmenagogue, uterine stimulant (1,7), Traditional Chinese Medicine contraindicates its use during pregnancy and in cases of excessive uterine bleeding (2), used to promote menstruation (13)
L2 – compatible with breastfeeding but use caution due to the potential for allergy (2), [the tincture] may be used diluted and applied to the nipples several times daily, and is sometimes used as a rinse in the baby's mouth if this is the source of the thrush, it is recommended by Hans Schilcher for treatment of oral thrush in *Phytotherapy in Paediatrics: Handbook for Physicians and Pharmacists* (3), insufficient reliable information, avoid use (4)

Corydalis yanhusuo, Corydalis
P3 – contraindicated during pregnancy (3), emmenagogue and uterine stimulant effects (empirical) (1,4,7), embryotoxic action in rats (7,9) may be unsafe due to cytotoxic effects (10)
L3 - insufficient reliable information, avoid use (4)

Cordyceps sinensis, Cordyceps
P2 – class 1 (1), insufficient reliable information, avoid use (4), may be unsafe during pregnancy due to affects on steroid hormone levels, may be useful in assisted-reproduction treatment due to *in vitro* evidence that it can increase 17beta-estradiol (E2) which directly influences the quality of maturing oocytes, traditional use in Chinese medicine to increase fertility & libido in both sexes (10)

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L2 – class 1 (1), insufficient reliable information, avoid use (4)

Crataegus spp., Hawthorn

P1 – class 1 (1), no increase in frequency of malformation or other harmful effects from limited use in women, no evidence of increased fetal damage in animal studies, fetal weights were slightly increased when the herb was administered to rats from days 8-15 of gestation (2), While results suggest that hawthorn taken at the recommended dose would have no adverse effects on embryonic development this may be due to the low bioavailability of some hawthorn constituents when taken orally, pharmacokinetic studies are required to determine the extent of absorption of hawthorn from the small intestine in healthy adults in order to verify its safety (10), specific data are lacking for the berry, animal studies on leaf & flower including oral administration in rats and rabbits showed no teratogenic effects or effects on fertility (12), unspecified hawthorn extracts have demonstrated reduction in uterine tone and motility *in vitro*, but the clinical significance of this is unknown (3)

L1 – compatible with breastfeeding (2), no negative effects are to be expected (12)

Curcuma longa, Turmeric

P2 – traditionally considered emmenagogic, therefore it is not recommended for internal use in pregnancy in doses higher than are typically found in food (3), generally considered to be safe when used as a spice in foods based on historical use, turmeric not found to be teratogenic in mice or rats (10), no proven increase in the frequency of malformation or other harmful effects on the fetus despite consumption by a large number of women, turmeric decoction is traditionally used in Ayurvedic medicine to treat vomiting of pregnancy (2), not to be used during pregnancy (1), avoid in pregnancy due to emmenagogue and abortifacient effects (empirical), uterine stimulant activity (*in vitro* or in animals), should not be used by women attempting conception (speculative) since high doses of turmeric showed infertility effects in rats (7)

L1 – compatible with breastfeeding (2)

Cynara scolymus, Artichoke

P2 – no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies are lacking (2), insufficient reliable information available at medicinal dosages, avoid use (4,6.10), excessive doses should not be taken during pregnancy due to lack of toxicity data (3)

L2 – compatible with breastfeeding (2), insufficient reliable information available at medicinal dosages, avoid use (4,10), excessive doses should not be taken during pregnancy due to lack of toxicity data (3)

Dioscorea villosa, Wild Yam

P2 – traditional use by Eclectics, Native Americans, and contemporary midwives for nausea & vomiting during pregnancy and in combination with other herbs (*Viburnum*) for threatened miscarriage with uterine contractions, also used postnatally for afterbirth pains, concerns of hormonal activity are unfounded based on scientific literature, but care should be taken when taking any herb during pregnancy (3), used by Meskwaki women for pain at childbirth (11), combined with *Cornus sericea*

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(Dogwood) in decoction for benefit in nausea and vomiting in pregnancy (13), class 1 (1), likely safe when consumed in dietary amounts (6)
L2 – class 1 (1), but no data exists, use caution (3)

Drosera rotundifolia, Sundew
P3 – insufficient reliable information, avoid using (4,10), "used in former times to promote delivery" (13)
L3 - insufficient reliable information, avoid using (4,10)

Echinacea angustifolia, purpurea, spp., Echinacea
P1 – oral intake of echinacea is considered safe during pregnancy based on preliminary studies (3), class 1 (1), no known restrictions, no evidence of increased risk (5), no proven increase of malformation or other harmful effects on the fetus despite consumption by a large number of women (2), preliminary evidence shows that women can safely use *Echinacea* for 5-7 days during the first trimester of pregnancy (4,10)
L1 – class 1 (1), compatible with breastfeeding (2), based on the experience of modern practitioners, no adverse effects are to be expected, considering that Echinacea consists of compounds generally considered to be non-toxic, little or no toxicity is expected to occur in nursing infants (12), "painful mammitis [mastitis] has been very successfully treated with it" (13) (unclear whether reference was suggesting its use in lactation-induced mastitis and whether it was used topically or internally, Ed.)

Elettaria cardamomum, Cardamom
P1 – class 1 (1), insufficient reliable information, avoid using in larger amounts than found in food (4,10)
L1 – class 1 (1), insufficient reliable information, avoid using in larger amounts than found in food (4,10)

Eleutheroccus senticosus, Eleuthero
P2 – class 1 (1), no known restrictions, absense of teratogenicity demonstrated in animals (5,2), no adverse effects expected (8), report of neonatal androgenisation was falsely identified as "Siberian Ginseng" but actually contained *Periploca sepium*, not Eleuthero (2,3), warning during pregnancy based on addition of Eleuthero to neonatal rat cardiomyocytes *in vitro* resulting in cessation of beating which was not seen in adults cells (10)
L1 – class 1 (1), compatible with breastfeeding (2), no known restrictions (5), no adverse effects expected (8)

Elymus repens, Couchgrass
P2 – class 1 (1), lack of sufficient data (10), limited data (3)
L1 – class 1 (1), lack of sufficient data (10), limited data (3)

Equisetum spp, Horsetail

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P3 – not for internal used during pregnancy (3), no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies lacking (2), powdered herb is high in inorganic silica and should not be administered to children, prolonged use of powdered herb should be avoided (speculative) due to potential adverse effects of high inorganic silica content and/or thiaminase activity (*in vitro* and in horses) (7), not recommended during pregnancy due to theoretical cause of thiamine deficiency, hypokalemia, and nicotine toxicity (10) *Equisetum hyemale* not to be used in pregnancy (1), *Equisetum laevigatum*, smooth horsetail, considered abortifacient by Costanoan people, a decoction was used to bring on delayed menses, and was also used as a contraceptive, reported by Thompson that a decoction was used to accelerate a difficult childbirth and to expel the afterbirth more quickly (11)
L2 – compatible with breastfeeding (2), not recommended while breastfeeding due to theoretical cause of thiamine deficiency, hypokalemia, and nicotine toxicity (10), contraindicated during lactation (3)

Eriodictyon californicum, Yerba Santa
P2 – class 1 (1), insufficient reliable information (4,10)
L1 – class 1 (1), insufficient reliable information (4,10)

Eschscholzia californica, California Poppy
P3 – contraindicated during pregnancy (1,3), uterine stimulant effect of alkaloid cryptopine (*in vitro)* (7), avoided by Native American Costanoan women during pregnancy and lactation due to a belief that the smell was poisonous (2,11), however a toxic effect is not expected (2)
L2 – compatible with breastfeeding, but use caution (2), insufficient reliable data (4,10), Mendocino women used the root juice as a wash to stop the secretion of milk, Pomo and Kashaya used the mashed seedpod or decoction of mashed seadpod rubbed on nursing mother's breast to dry up her milk (11)

Eupatorium perfoliatum, Boneset
P3 –contraindicated during pregnancy due to potential abortifacient activity associated with consumption of large amounts with high nitrate content by cattle, and risk of cathartic effects produced by consumption of large amounts, potential exists for toxicity from unidentified alkaloids or adulteration with species containing pyrrolizidine alkaloids (7,10), insufficient data (1), used by the Chippewa to correct irregular menses (11)
L3 – contraindicated while breastfeeding due to risk of cathartic effects produced by consumption of large amounts, potential exists from toxicity from unidentified alkaloids or adulteration with species containing pyrrolizidine alkaloids (10), insufficient data (1)

Eupatorium pupureum, Gravel Root, Joe-Pye Weed
P3 – contraindicated while pregnant (speculative), external use only, contains pyrrolizidine alkaloids (1,7), possible abortifacient effect from large amounts due to high nitrate content (cattle) (7), infusion of root used by Cherokee for "female problems" and as a tonic during pregnancy, decoction of root used by Menominee and Potawatomi "for internal healing" after childbirth and "to clear up afterbirth" respectively (11), Eclectics used it for "irritable bladder of pregnancy," "chronic irritability of the womb," and "habitual abortion" due to prolapse or other atonic states of the uterus (13)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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L3 – contraindicated while breastfeeding, (speculative) external use only, contains pyrrolizidine alkaloids (1,7)

Euphrasia spp., Eyebright

P1 – class 1 (1), no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies lacking (2), insufficient data (10)

L1 – class 1 (1), compatible with breastfeeding (2), insufficient data (10)

Filipendula ulmaria, Meadowsweet

P3 – toxicity and fetal malformations have been seen in animal studies, therefore its use is contraindicated during pregnancy (3), not recommended (no reason provided) (6), salicylates are associated with detrimental effects on pregnancy, though the amount of salicylates ingested while taking meadowsweet would likely be far lower than what has been studied to be problematic (2), may increase uterine tone and stimulate uterine activity, taken during 3rd trimester theoretically may lead to premature closure of the ductus arteriosus and cardiac and pulmonary abnormalities in the fetus (10)

L2 – toxicity and fetal malformations have been seen in animal studies, therefore its use is contraindicated during lactation (3),caution during breastfeeding, salicylates excreted in breast milk have been reported to cause rashes in breast-fed babies (2)

Foeniculum vulgare, Fennel

P2 – not for medicinal use during pregnancy due to possible estrogenic effects (3), contraindicated during pregnancy due to emmenagogue effect (empirical), especially in concentrated forms such as essential oil, and potential estrogenic activity due to volatile oil components anethole, dianethole, photanethole shown to be phytoestrogenic (acetone extract in rats) (7), estrogenic effects (increased weight of mammary glands at moderate doses, increased weight of oviduct, endometrium, myometrium, cervix, and vagina with higher doses) in female rats, animal study showed reduction in fertility, but relevance to humans is unknown (2), based on secondary sources, fennel preparations, other than fennel seed infusions and fennel honey, are contraindicated during pregnancy (10), given to women in labor by the Cherokee (11), may be used in amenorrhea (13)

L1 – compatible with breastfeeding, traditionally used to enhance lactation (2), galactagogue, used in suppressed lactation, (13)discontinue if CNS toxicity symptoms arise in nursing mother or infant following consumption (human case reports) (7),

Fouquieria splendens, Ocotillo

P3 – avoid in pregnancy (speculative) due to emmenagogue effects (empirical) (7), class 1 (1), limited data (3)

L1 – class 1 (1), limited data (3)

Fucus versiculosus, Bladderwrack

P2 – no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies are lacking, iodine can cross the placenta and therefore should not be taken in high or prolonged doses during pregnancy (2), avoid using excessively in pregnancy due to high iodine

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1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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content that can disrupt iodine utilization by the thyroid (empirical) (7), potential for iodine toxicity or toxicity by environmental contaminants (4,10), contraindicated during pregnancy (source: British Herbal Compendium) (1)
L2 – compatible with breastfeeding but use caution, iodides can be concentrated in breast milk and therefore bladderwrack should not be taken in high or prolonged doses during lactation (2), potential for iodine toxicity or toxicity by environmental contaminants (4,10), contraindicated during breastfeeding (source: British Herbal Compendium) (1)

Galium aparine, Cleavers
P1 – class 1 (1), no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies lacking (2), limited data (3)
L1 – class 1 (1), compatible with breastfeeding (2), limited data (3)

Ganoderma lucidum – Reishi mushroom
P1 – class 1 (1), possibly safe (4), lack of sufficient data available (10), no data available (12), safety during pregnancy has not been established, not classically used for treatment of hypertension during pregnancy, but research on its hypotensive effect on non-pregant individuals may point to a novel use for pregnancy-induced hypertension (3)
L1 – class 1 (1), lack of sufficient data available (4,10), no data available (12), no expectation of contraindication (3)

Gentiana lutea, Gentian
P3 – no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies lacking (2), may not be well tolerated by pregnant women (1), lack of sufficient data (10), contraindicated due to mutagenic effects seen on Ames test (3)
L3 – compatible with breastfeeding (2), lack of sufficient data (10), contraindicated due to mutagenic effects seen on Ames test (3)

Geranium maculatum, Cranesbill
P2 – class 1 (1), insufficient reliable evidence (4)
L1 – class 1 (1), insufficient reliable evidence (4), "from its freedom from any nauseas or unpleasant qualities, it is well adapted to infants" (13)

Ginkgo biloba, Ginkgo
P3 – avoid during pregnancy if possible, concern that blood thinning activity could cause excess bleeding during delivery, though no reports exist in the literature, no evidence of increased fetal damage in animals (2), no experience regarding the use of ginkgo leaf extract in pregnant humans, but several animal studies on fertility and embryotoxicity indicate that there is no potential for reproductive toxicity at normal dosages (12), no known restrictions (5), not recommended during pregnancy (3,6), concern of labor-inducing and hormonal effects (unreferenced) (4), in theory, high concentrations of Ginkgo may reduce male and female fertility (no reference) (10)
L3 – no data available (2,10,12), contraindicated during lactation (3)

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1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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Glycyrrhiza glabra, Licorice

P2 – increased risk of premature labor when used regularly and in high doses during pregnancy, generally not recommended though exceptions for short-term use may be made under the guidance of a qualified practitioner for specific condition (3), no proven increase in the frequency of malformation or other harmful effects on the fetus despite consumption by a large number of women, however excessive intake (500mg glycyrrhizin or greater per week) is associated with pre-term and early-term delivery (human study) (2,3,7), European authorities advise that licorice generally is contraindicated in pregnancy, noting theoretical concerns associating it with pre-term delivery, however conclude that doses up to 3g/day are likely to be safe (2), 500mg glycyrrhizin or more per week during pregnancy is associated with significant diminishment of verbal and visuospatial skills and narrative memory in the children by age 8 years (human study) due to inhibition of placental 11-beta-hydroxysteroid dehydrogenase, also these children show significant increases in problems with attention, aggression, and rule-breaking, apparently due to overexposure to glucocorticoids in the womb (7), avoid due to interference in steroid metabolism (*in vitro*, in mice) and hormonal activity of its phytoestogen components, as well as its emmenagogue effect (empirical) (4,7,10), women with preeclampsia should avoid licorice (2)

L2 – compatible with breastfeeding (2), should not be used by nursing mothers, especially in high doses due to potential influence of hormone metabolism in infant (speculative) (7), contraindicated during lactation (3)

Grifola frondosa, Maitake

P1 – class 1 (1), insufficient reliable information (4,10)

L1 – class 1 (1), insufficient reliable information (4,10)

Grindelia robusta, Grindelia

P2 – class 1 (1), insufficient reliable information (4,10)

L2 – class 1 (1), insufficient reliable information (4,10)

Gymnema sylvestra, Gymnema

P3 – contraindicated in pregnancy (3), no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies are lacking, folk use to promote abortion has been reported (2), no adverse effects expected (8), insufficient reliable information available, avoid using (4,6,10)

L3 – contraindicated in lactation (3), insufficient reliable information available, avoid using (2,4,6,10)

Hamamelis virginicus, Witch Hazel

P2 – class 1 (1), prolonged use not advisable due to tannins (7), insufficient reliable information, avoid using (4,10), not intended for use internally during pregnancy, but can be used topically for hemorrhoids (3), used by Iroquois to prevent hemorrhage after childbirth and shoots were taken by a pregnant woman who has fallen or been hurt (11), used by Eclectics for uterine hemorrhage following childbirth (13)

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1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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L2 – class 1 (1), insufficient reliable information, avoid using (4,10)

Harpagophytum procumbens, Devil's Claw

P2 – no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies lacking, low doses of the dried tuber (0.25g 3x/day) are administered to pregnant women in South Africa to relieve pain, and this is continued post-partum at a reduced dose, the fresh tuber is made into an ointment and applied to the abdomen of women who anticipate a difficult birth (2), possibly unsafe due to oxytocic (uterine contracting) activity in animals (4,6,10), no adverse effects expected (8)

L1 – compatible with breastfeeding in very low doses, it has been used in the postpartum period in traditional South African medicine (2), insufficient reliable information, avoid using (4)

Humulus lupulus, Hops

P3 – not for use during pregnancy, direct estrogenic effects have been observed *in vitro* (3), no adverse effects expected, although profound estrogenic effects have been recorded in women harvesting the plant by hand, the polyphenol xanthohumol has estrogenic activity and although present in freshly harvested hops it disappears rapidly through oxidation, even on cold storage, estrogenic flavonoid derivatives are also contained in the plant (8), no increase in the frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies are lacking, concerns over estrogenic effects would require very high dosages (2), caution due to possible hormonal effects (6), caution due to possible hormonal and sedative effects (10)

L1 – compatible with breastfeeding, but use caution due to possible sedating effects in the infant (2), useful as a galactagogue as well as relaxing herb to promote milk let down (3), not a galactagogue according to James Snow materia medica 2002, it is one of the grains in beer that acts as a galactagogue, not the hops (Ed.) insufficient information (4,10)

Hydrangea arborescens, Hydrangea

P2 – insufficient reliable information, avoid using (4,10), no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies are lacking, hydrangea is used predominantly by men (2)

L2 – compatible with breastfeeding (2), insufficient reliable information, avoid using (4,10)

Hydrastis Canadensis, Goldenseal

P3 – contraindicated during pregnancy (1,5,7,8), may induce labor (10), uterine stimulant actions of its alkaloids berberine, hydrastine, canadine, and hydrastinine (*in vitro* or in animals), berberine is thought to cross the placenta and may cause harm to the fetus (4), displacement by berberine of bilirubin from serum albumin may lead to kernicterus in infants (IP in rats) (7), best avoided during pregnancy except for short-term use to assist labor, hydrastine (0.5g) induced labor when taken orally by pregnant women, kernicterus in premature Chinese infants with neonatal jaundice has been reported to be associated in some cases with use of Coptis chinensis either by direct administration, transplacental absorption, or via breast milk suggesting berberine-containing plants are best avoided in pregnancy & lactation (2), the use of goldenseal during pregnancy is controversial with contraindications based on

Sources:

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stimulation of isolated uterine tissue by isolated constituents, potential toxicity of long-term intake is more of a concern and high doses should not be taken long-term by pregnant women, but it is premature to contraindicate the herb entirely (3)

L3 – strongly discouraged during breastfeeding due to known exposure to berberine via breastmilk following maternal ingestion of berberine-containing plants (2), berberine is not safe in babies with glucose-6-phosphate dehydrogenase deficiency (7), contraindicated during cases of neonatal jaundice due to displacement by berberine of bilirubin from serum albumin which may lead to kernicterus (IP in rats) (6,7), likely unsafe (4), should be avoided until further research has been conducted (5), contraindicated due to lack of sufficient data (10)

Hypericum perforatum, St. John's Wort

P2 – although case reports of human exposure to SJW during pregnancy do exist, there is insignificant data to assess whether it is safe (10), anecdotal evidence suggests that SJW might be safe for use during pregnancy, but animal model research has produced contradictory findings (4), because of lack of clinical trials, SJW is not commonly recommended for treatment of mood disorders during pregnancy but more often reserved for topical treatments of vaginitis, treatment of perineal tears post-birth, and sore, cracked nipples during lactation (3), should not be used during pregnancy due to its emmenagogue and abortifacient effects (empirical) and its uterine stimulant action (*in vitro* and in animals) (7), used in combination with other herbs to "promote menstruation" by the Cherokee (11), in a prospective, observational, controlled study of women in Canada to investigate the teratogenic potential of substances during pregnancy, the SJW group (615mg/day) had more spontaneous abortions and malformations compared to the pharmaceutical and non-antidepressant group respectively (7), evidence that SJW during pregnancy does not affect cognitive development or cause long-term behavioral defects (6,10), a limited number of case reports indicated healthy pregnancies and infants when SJW was used prenatally (3), case report of a pregnant woman taking 900mg SJW 6:1 extract from 24 weeks until 24 hours prior to delivery resulted in a healthy baby, mother discontinued SJW postpartum and initiated breastfeeding, the neonate developed jaundice on day 5, mother resumed SJW on day 20 (300mg) and continued breastfeeding, behavioral assessment at 4 and 33 days was normal (2), 2009 prospective cohort study conducted by Motherisk, Hospital for Sick Children, Toronto, Canada, followed 54 pregnant women exposed to SJW during pregnancy, 54 pregnant women on antidepressant pharmaceuticals during pregnancy, and 54 pregnant women with no teratogenic exposure, results showed rates of major malformations similar across the 3 groups at 5%, 4%, and 0% respectively keeping in mind that the major malformation rate in the general population is 3-5% (Dugoua, J. 2010. Herbal medicines and pregnancy. *J Popul Ther Clin Pharmacol, Vol 17(3)*), may lower offspring birth weight (*in vitro* and animal) (6), minor adverse effects (reduction in litter size and smaller offspring) were observed at high doses in one study on mice, other animal studies also at high dose did not show toxicity or adverse effects on either mother or offspring (2), 100mg/kg dose of extract in rats induces metabolic isozymes and transporter proteins in the mother, which in the fetus may lead to a disruption of hormonal concentrations and/or toxicity, 100mg/kg during the entire prenatal period caused kidney and liver damage in newborn rats (7)

L1 – appears to be relatively safe in lactation, a study of breastfeeding mothers taking 300-480mg SJW per day indicated that low levels of hyperforin are excreted into breastmilk, however infant exposure is

Sources:

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comparable to levels reported in most studies assessing antidepressants or neuroleptics and no side effects were seen in mothers or infants (6), the plasma of one infant was tested whose mother was taking 300mg/day and no constituents were detectable, according to lactation and medication expert Hale, the data suggests that the transfer to milk of SJW is minimal and it appears to be safe for use during lactation (3), no significant differences in adverse effects or lactation was seen in a study between 33 breastfeeding women taking SJW and 101 breastfeeding women not taking SJW, but 2 reports of colicky infants, 2 cases of "drowsiness" and 1 case of "lethargy" were reported in the SJW group (10), a number of these infants were also reported to have been exposed to conventional antidepressants via breastfeeding, other limitations to the report include lack of product identification or dosage, use of topical applications of SJW oil or salve as treatment for sore, cracked nipples does not appear to be harmful to the infant (as with all topicals to the nipples while nursing, the excess should be wiped off prior to breastfeeding) (3)

Inula helenium, Elecampane

P3 - do not use in pregnancy due to potential toxicity (empirical) (7), no increase in frequency of malformation or other harmful effects on the fetus from limited use in women, animal studies lacking, listed as contraindicated while pregnant by the British Herbal Compendium, however it is indicated for threatened abortion in TCM (2), not to be used during pregnancy, large doses cause vomiting, diarrhea, spasms, and symptoms of paralysis (1), not recommended during pregnancy due to lack of data (10), used by Cherokee "for female obstructions and pregnant women with weak bowels and wombs" (11), "is said to be emmenagogue" (13)

L3 - should be avoided by nursing mothers due to potential toxicity (empirical) (7), strongly discouraged in breastfeeding, British Herbal Compendium contraindicates in lactation perhaps on the basis of the sesquiterpene lactone alantolactone, which is a contact allergen (2), not to be used while nursing, large doses cause vomiting, diarrhea, spasms, and symptoms of paralysis (1)

Iris versicolor, Blue Flag

P2 - likely unsafe during pregnancy (4), not recommended during pregnancy (3,10) due to emetic effect – may cause nausea & vomiting (1), infusion of smashed roots used by Iroquois women at menses to induce pregnancy (11), at one time the oleoresin was used to treat vomiting during pregnancy (7), Iridin, in a 3-grain pill, every night, followed by a saline cathartic in the morning was quite popular among the Edinburgh physicians some years ago as a remedy for the vomiting of pregnancy (13), the British Herbal Compendium recommends its use in low doses for pregnancy-related vomiting (2),

L2 - likely unsafe while breastfeeding (4), not recommended while breastfeeding (3,10), compatible with breastfeeding (2), unmentioned (1)

Juniperus communis, Juniper

P3 – avoid in pregnancy due to emmenagogue effect and abortifacient effect of its volatile oil via irritation of the urinary tract leading to reflex stimulation of the uterus (7), not to be used during pregnancy (1), unsafe during pregnancy due to ability to increase uterine tone and interfere with implantation & fertility (4,10), abortifacient activity of juniper has been observed in rats after oral

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administration of a 50% ethanolic extract at 300mg/kg bodyweight (10), reports of overdose of the essential oil include abortion among other adverse effects, however it appears there has been confusion between *Juniper communis* and *Juniper sabina* dating back to the 1920s and possible adulteration of juniper oil with other species. *Juniperus sabina* is known to be dangerous during pregnancy and in patients with renal disease, a 1993 paper by Hiel and Schilcher suggests the essential oil of the ripe berries is safe, but owing to the contradictory published studies it should still be avoided during pregnancy (2), Cheyenne burned leaves of juniper at birth to aid with delivery, the Woodlands Cree used a decoction of branches or wood with other herbs for "woman's troubles" and for sickness after giving birth, the Delaware used an infusion for women's diseases (11)
L2 – insufficient reliable data, avoid using (4)

Lavendula angustifolia, Lavender (English)

P1 - class 1 (1), volatile oils have the ability to cross the placenta, therefore it is not recommended internally during 1st trimester beyond the occasional cup of beverage tea containing lavender, lavender tea or tincture taken internally for insomnia during later stage pregnancy appears to be safe and essential oil may be used in baths and aromatherapy, there is also an emerging concern about possible estrogenic effects (reported in the New England Journal of Medicine) of long term topical use on young boys though the evidence against lavender is not clear (3), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), safety of internal use has not been scientifically established, no restrictions for external use (6), secondary sources suggest excessive use be avoided during pregnancy due to emmenagogue properties (10), insufficient reliable information, avoid using (4)
L1 – compatible with breastfeeding, the essential oil has the potential to pass into breast milk providing a mild carminative effect in the baby (2), the United States National Library of Medicine's Drugs and Lactation Database (LactMed) does not indicate any effects of lavender on breastfed infants or on lactation (10), insufficient reliable information, avoid using (4), colic is said to have been caused by immoderate use of the infusion (13)

Leonorus cardiaca, Motherwort

P2 – no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, evidence of increased foetal damage in animal studies exists although the relevance to humans is unknown, it is contraindicated in pregnancy by the British Herbal Compendium likely due to extrapolation of studies on the constituent leonurine which showed increased tone and contractions on isolated uterus, the Commission E advises no known contraindication (2), leonurine has been reportedly associated with fetal damage in animals and excessive amounts should be avoided in early pregnancy due to emmenogogue effects and the uterine stimulant activity of its constituents stachydrine and leonurine (7), contraindicated in early pregnancy, but is considered a useful spasmolytic during protracted first stage labor and is widely used by herbalists and midwives, no side effects expected from appropriate use during labor (3), not to be used during pregnancy due to emmenogogue and uterine stimulant activity (1,4), used for "female diseases" and "female ills" by Native Americans including the Delaware, Mohegan, and Shinnecock, used by the Micmac for obstetric cases (11), "emmenagogue, nervine, antispasmodic, and laxative…and in suppressed lochia

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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[vaginal discharge following childbirth] we have found it superior to any other remedy…adapted to cases of…pelvic and lumbar uneasiness or pain, bearing down pains, and the irritability due to female disorders… externally a fomentation was applied to the bowels for suppressed and painful menstruation…dose of decoction, from 2 to 4 fluid ounces, every 1, 2, or 3 hours" (13)
L1 – compatible with breastfeeding (2), insufficient reliable information, avoid using (4)

Ligusticum porteri, Osha

P3 – not to be used during pregnancy (1,3), contraindicated in pregnancy, used to stimulate menstruation, reported abortifacient activity (4,7)
L2 - insufficient reliable information, avoid using

Lobelia inflata, Lobelia

P2 – not to be used during pregnancy due to emetic effects (1,4), avoid in pregnancy due to emetic and toxic potential, thought to relax the uterine os and perineal musculature (7), the Eclectics write: "lobelia is of value in obstetrical practice, it powerfully subdues muscular rigidity, it is the remedy to overcome a rigid os uteri during parturition, and at the same time it relaxes the perineal tissues, this it does when there is a fullness of tissue – a thick, doughy, yet unyielding os uteri" (13), according to secondary sources lobelia may cause loss of uterine tone (10), contraindicated during pregnancy except potentially during labor by experienced midwives who have experience with its use to relax the cervix during difficult labor with failure to progress, there are no safety or efficacy data regarding this practice (3), *in vitro* research showed that lobeline combined with 1% or 2% alcohol resulted in increases of number of chromatid breaks, but lobeline along did not have any affect on chromosomes (10)
L3 - likely unsafe due to emetic effects

Lomatium dissectum, Lomatium

P3 – not to be used during pregnancy, can cause skin rashes when used internally (1,7), lack of sufficient data (10), Native Americans did have many uses for the plant and at the same time acknowledged its toxic potential, the Okanagan-Colville people considered the purple shoots, mature tops and roots, and strong infusion or decoction of roots to be poisonous (11)
L3- lack of sufficient data (10), assumed unwise to use while breastfeeding (Ed.)

Lycopus virginicus, Bugleweed

P3 – not to be used during pregnancy (1), contraindicated during pregnancy, associated with substantial risk of causing harmful effects on the foetus or neonate without causing malformations, risk is related to reduction in serum thyroid hormones shown to occur *in vivo* and reduced number of offspring that was shown in mice and rats treated with *Lycopus spp.* (2), avoid in pregnancy due to antigonadotropic (7,4) and antithyroid activity (3,7,4), primary literature for antihormone-like effects consists of German articles from 1969 and 1970 on isolated constituents including lithospermic acid (10), the Iriquois considered both the roots and leaves to be poisonous, while the Cherokee gave the chewed root to infants to give them "eloquence of speech" (11)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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L3- not to be used while nursing (1), contraindicated in breastfeeding because decreased milk supply was observed in rats and antithyroid constituents may pass into breastmilk (2), some studies have found an antiprolactin effect in relation to its antithyroid actions, thus it is generally contraindicated during lactation (3,4,7,10), the Iriquois considered both the roots and leaves to be poisonous, while the Cherokee gave the chewed root to infants to give them "eloquence of speech" (11)

Mahonia acquifolium, Oregon Grape Root

P3 – not to be used during pregnancy due to berberine content, Canadian regulations require bilingual label warning against use during pregnancy (1), avoid in pregnancy due to the uterine stimulant action from its alkaloids berberine, palmatine, jatorrhizine, and columbamine (*in vitro* or animal studies) and displacement by berberine of bilirubin (10) from serum albumen which may lead to kernicterus (IP in rats) (7), kernicterus in premature Chinese infants with neonatal jaundice has been reported to be associated in some cases with use of Coptis chinensis either by direct administration, transplacental absorption, or via breast milk suggesting berberine-containing plants are best avoided in pregnancy & lactation (2)

L3 – strongly discouraged during breastfeeding due to known exposure to berberine via breastmilk following maternal ingestion of berberine-containing plants (2), avoid use by nursing mothers due to displacement by berberine of bilirubin (10) from serum albumen which may lead to kernicterus (IP in rats), avoid use in newborns for the same reason (7)

Marrubium vulgare, Horehound

P3 – not to be used during pregnancy due to emmenogogue & uterine stimulant activity (1) shown in animals and reported ina 1975 Farnsworth paper (10), uterine stimulant activity shown *in vitro* or in animals (7), no adverse effects expected (8), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, evidence of increased foetal damage in animal studies exists, although relevance to humans is unknown, oral administration of white horehound decoction to 2 pregnant guinea pigs resulted in 4 stillborn animals, this activity was not demonstrated in rats or mice, the fresh plant juice is said to assist in discharging the placenta (2), has been used with benefit in cases of amenorrhea and it is purgative in large doses (13)

L2 – insufficient reliable information, avoid use (4), no adverse effects expected (8), compatible with breastfeeding (2)

Matricaria recutita, Chamomile

P1 – class 1 (1), no adverse effects expected (5,8), known safe, although commonly cited as contraindicated during pregnancy, this is based on a 1979 study that found teratogenic effects using high doses of a concentrated extract of alpha-bisabolol (oil constituent found in chamomile), lower doses were not shown to be teratogenic and it would not be possible to drink enough tea to approximate the teratogenic dose of this constituent (3), no proven increase in the frequency of malformation or other harmful effects on the foetus despite consumption by a large number of women, widely consumed in many countries and no adverse effects during pregnancy have been documented, animal studies using oral chamomile extracts have not produced teratogenicity or signs of changes in prenatal development (2), in a study of 588 pregnant Australian women, 11% took chamomile while

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1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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pregnant, however there have been no formal studies on chamomile on pregnant women (10), safety has not been established scientifically, but no teratogenic effects have been shown in vivo (6), the Eclectics write: "in pregnancy, it relieves nervous twitching, cough, false pains, etc., accompanied by great unrest, it should be borne in mind, however, that it is not the gross dose of matricaria that will overcome these morbid, nervous phenomena, but the small, or almost minute dose, it is one of those agents…that exert their peculiar effects only in small doses, yet can be used without harm in large doses, but without the peculiar benefit derived from the smaller amounts" (13), the Montana Indian used an infusion to build blood at childbirth and assist in delivering the placenta, while the Diegueno used a decoction of the whole plant following childbirth (11), insufficient reliable information, avoid using (4,10), a life-threatening anaphylactic reaction was reported in a woman given a glycerol and Kamillosan [chamomile-based topical] enema during labor with the infant also becoming asphyxiated (10)

L1 – class 1 (1), no adverse effects expected (5,8), compatible with breastfeeding (2), insufficient reliable information, avoid using (4,10), may cause changes in lactation, particularly in nutritional quality and flavor (10)

Medicago sativa, Alfalfa

P2 – class 1 (1), possibly unsafe in medicinal amounts, potential estrogenic activity (4), due to the phytoestrogen coumestrol, a 1975 Farnsworth paper stated that alfalfa has uterine stimulant activity, however no other findings have been reported in the literature or observed by clinical herbalists (3), speculative warnings against extensive internal use during pregnancy due to its phytoestrogenic activity, effects on sheep (oral consumption), and antigonadotropic effect shown *in vitro* in rats (7), based on traditional use, small amounts as normally consumed in foods may be safe (10), studies on estrogenic effects of alfalfa on sheep are based on consumption of large amounts of alfalfa in feed mixtures [Ed.]

L1 – class 1 (1), speculative warning against regular consumption by nursing mothers due to phytoestrogenic activity of coumestrol found in alfalfa and an animal study showing eventual reduced sexual behavior of rats following daily exposure to coumestrol via nursing (7), alfalfa seeds are traditionally reputed to be lactogenic and to effect the menstrual cycle (10)

Checked against 1,2,3,4,5,6,7,8,9 – need to check 11,13

Melilotis officinalis, Sweet Clover

P1 – insufficient reliable information, a study of 30 2nd and 3rd trimester pregnant women did not show any adverse effect (4)

No information available (Ed.)

Melissa officinalis, Lemon Balm

P2 – class 1 (1), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), no adverse effects expected (8), no mutagenic or genotoxic effects have been observed in experimental models, generally considered safe during pregnancy, a recommended herb to help promote sleep during 3rd trimester, avoid in cases of thyroid disorders and with thyroid medications (3), avoid in pregnancy due to emmenagogue effect (empirical)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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and antithyrotropic and antigonadotropic activity shown (*in vitro*; animal studies) (7,10), insufficient reliable information, avoid using (4,10), safety has not been scientifically established and is yet unknown (6)
L1 – class 1 (1), compatible with breastfeeding, essential oil of lemon balm may pass into breast milk, producing a mild sedative effect in the baby, adverse effects are not expected (2), no adverse effects expected (8), insufficient reliable information, avoid using (4)

Mentha x piperita, Peppermint
P1 – class 1 (1), for use as a beverage tea only during 1st trimester pregnancy because volatile oils can cross the placenta (3), excessive use should be avoided in early pregnancy due to emmenagogue activity (7), no known restrictions (5), no adverse effects expected (8), likely safe when used in amounts commonly found in food, insufficient reliable data regarding its use in medicinal amounts during pregnancy (4), its common use during pregnancy for pregnancy-induced nausea is documented in multiple survey studies of pregnant women, however [scientific] data regarding safety and efficacy are lacking (10), safe dosages in pregnant women have not been established, external use is likely to be safe (6), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies largely lacking, a tea consisting of peppermint and several other herbs did not affect postnatal development or demonstrate embryotoxicity or teratogenicity when administered to rats, menthol was given orally to mice, rats, hamsters, and rabbits and was not shown to be teratogenic (2)
L2 – class 1 (1), no known restrictions (5), no adverse effects expected (8), likely safe when used in amounts commonly found in food, insufficient reliable data regarding its use in medicinal amounts during lactation (4,10), compatible with breastfeeding, but use of the oil should be discouraged, caution should be exercised in light of a view that peppermint may dry up milk secretions (2,7), this warning is likely related to the herbs essential oil and problems associated with large amounts of peppermint candies, breath mints, and cough drops, tea of the aerial parts of the plant are not likely to pose an problem when taken in moderate amounts (Ed.)

Mitchella repens, Partridgeberry
P1 - class 1 (1), limited data (3), insufficient reliable information (4)
L1 - class 1 (1), limited data (3)

Myrica cerifera, Bayberry
P3 – contraindicated during pregnancy (3), possible carcinogenic or mineralocorticoid activity, avoid while pregnant (4), contraindicated according to secondary sources (10), class 1 (1)
L2 – possible carcinogenic or mineralocorticoid activity, avoid while breastfeeding (4), contraindicated according to secondary sources (10), class 1 (1)

Nepeta cataria, Catnip
P3 – not to be used during pregnancy due to emmenagogue and uterine stimulant activity (1,7), limited data (3), not recommended due to lack of data (10)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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L1 - limited data (3) insufficient reliable data, avoid using (4,10), despite limited data, catnip has been rated L1 based on widespread use by mothers while breast feeding and its accepted safety for use with infants (Ed.)

Ocimum tenuiflorum, Holy Basil

P2 - insufficient reliable information, avoid using (4), based on traditional use, it should be avoided during pregnancy due to its ability to stimulate uterine contractions [unreferenced] (10)
L2 - insufficient reliable information, avoid using (4)

Oplopanax horridus, Devil's Club

P2 – class 1 (1), insufficient reliable information, avoid using (4,10), anecdotal reports of its use to expel afterbirth and start post-partum menstrual flow (10)
L2 – class 1 (1), insufficient reliable information, avoid using (4)

Paeonia lactiflora, Chinese (White) Peony

P2 – no adverse effects expected (8), extensive use should be avoided in early pregnancy due to emmenagogue effect (7), traditionally used as an emmenagogue and abortifacient, certain Chinese herbal formulas containing peony have been shown to have hormonal effects including changes to progesterone, estrogen, LH, and FSH levels, however adverse effects were not reported for a clinical trial involving 126 pregnant Chinese women who used an herbal formula containing white peony root for prevention of maternal-fetal blood group incompatibility (10), preliminary research on rabbit uteri suggests peony can cause uterine contractions (4), however research using a combination of peony and angelica for gestational hypertension suggest the herb may be safe in pregnancy (4,10)
L2 - no adverse effects expected (8), insufficient reliable information, avoid using (4)

Panax ginseng, Asian Ginseng

P2 –Chinese tradition suggests that *Panax ginseng* should not be used by pregnant women, yet according to the World Health Organization (WHO) it has been used traditionally by pregnant and lactating women, in a systematic review *Panax ginseng* was not associated with adverse effects when used during pregnancy and according to the WHO ginseng is not teratogenic *in vivo* (5,10), a ginseng saponin product was given to 28 pregnant women with intrauterine growth retardation and the results showed equal efficacy to nutritional treatment and no adverse effects on fetuses, animals studies have shown teratogenic effects of ginsenoside Rb1 and other isolated ginsenosides, but the exposure was to very high levels of these isolated constituents on animal embryos (2,10), no known restrictions noted by AHPA or Commission E, but controlled long term safety studies are lacking, the British Herbal Compendium contraindicates ginseng in pregnancy, TCM includes ginseng root in prescriptions given during pregnancy, labor, and postpartum (5), considering its traditional use in Korea as a tonic during pregnancy as well as potential teratogenicity of ginsenoside Rb1 *in vitro*, ginseng should be used cautiously during 1st trimester pregnancy (6), no adverse effects expected (8), no proven increase in the frequency of malformation or other harmful effects on the foetus despite consumption by a large number of women, a study in Hong Kong involving 88 pregnant women taking ginseng showed a lower number of women with preeclampsia than controls and concluded that further study was

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1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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necessary to clarify the possible benefit of ginseng during pregnancy, no adverse effects were seen in 2 generations of rats consuming oral ginseng as a 5:1 extract (2), another study involving 88 pregnant women suggested an increase risk of adverse fetal outcome, avoid in early stages of pregnancy due to possible estrogenic effects, though estrogenic activity may be due to metabolites from fungal contamination (7)

L2 – no adverse effects expected (8), compatible with breastfeeding, ginseng is traditionally prescribed for lactating mothers as part of combination tonic formulas (2), lack of human studies on lactation, though *in vitro* and animal studies have shown minimal risk (10), [Natural Standard also lists infant-death and intoxication-like syndrome associated with newborn babies who were given *Panax ginseng* or whose mothers took it while pregnant or nursing, but the reference is to a case of androgenization that was due to Eleuthero adulteration, not *Panax ginseng,* Ed.], insufficient reliable information, avoid using (4)

Panax quinquefolius, American Ginseng

P2- class 1 (1), no known restrictions (5), teratogenic effects of ginsenoside Rb1 (see *Panax ginseng),* avoid using during pregnancy (4)

L2 – class 1 (1), no known restrictions (5), insufficient reliable data, avoid using (4)

Passiflora incarnata, Passionflower

P2 – class 1 (1), no adverse effects expected (8), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, no evidence of increased foetal damage in animal studies, teratogenic effects were not observed in rats administered passionflower extract (2), passionflower was shown to increase uterine contractions of isolated rat uterus tissue compared to control tissue, avoid use in pregnancy (6), a 1975 Farnsworth paper reports that constituents harman and harmaline were reported to stimulate the uterus in several animal studies during the early 1930s, these effects have not been investigated in recent available studies, whether passionflower contains the cyanogenic glycoside gynocardin remains controversial among experts (10), avoid in pregnancy due to uterine stimulant action (4) of its alkaloids harman and harmaline and the cyanogenic glycoside gynocardin (7)

L1 – class 1 (1), no adverse effects expected (8), compatible with breastfeeding (2), insufficient reliable information, avoid using (4)

Petasites hydrides, Butterbur

P3 – avoid in pregnancy due to emmenogogue effect and content of toxic pyrrolizidine alkaloids (3,7), insufficient reliable information about use of PA-free products during pregnancy (4), avoid use due to lack of safety studies (10)

L3 – should not be used by nursing mothers due to content of toxic pyrrolizidine alkaloids (3,7), insufficient reliable information about use of PA-free products during breastfeeding (4), avoid use due to lack of safety studies (10)

Phytolacca Americana, Poke Root

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P3 – contraindicated in pregnancy (2,8), risk of causing foetal malformation or irreversible damage, potentially toxic, intraperitoneal administration of seeds, roots, and leaves of *Phytolacca acinosa* has caused mid-term abortifacient activity in pregnant mice, abortion in cows has been reported as due to ingestion of poke berries, reported use of the root as an abortifacient (2), significant data exists to issue labels with warnings (1), not for internal or topical use at any time during pregnancy, known toxicity including eosinophilia, nausea, vomiting, cramping, weakness, diarrhea, hematemesis, hypotension, and tachycardia (3), uterine stimulant and abortifacient effects, unsafe for use (4,7,10)
L3 – contraindicated in lactation (2,8), on the basis of its potential toxicity (2) significant data exists to issue labels with warnings (1) not for internal or topical use at any time during lactation, known toxicity including eosinophilia, nausea, vomiting, cramping, weakness, diarrhea, hematemesis, hypotension, and tachycardia (3), unsafe for use (4), traditional use exists for its topical use in treating mastitis, breastfeeding infants should not be exposed to poke root applied topically to breasts, so application to the nipple should be avoided (2)

Piper methysticum, Kava

P3 – not to be used during pregnancy (1,3,6), avoid in pregnancy or use cautiously due to *in vitro* evidence that kava lactones cause loss of uternine tone (7,10), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, no evidence of increased foetal damage, yet the Australian Therapeutic Goods Administration contraindicates its use in pregnancy and societies with traditional use of kava tend to have prohibitions about its use by women and pregnant women, additionally there are references to its use as an abortifacient and contraceptive, though it may have a potential place for inducing easy labor and to correct displacement of the womb (2), no adverse effects expected at normal therapeutic doses despite caution from Commission E (8)
L3 – not to be used while nursing (1,3), not for use by nursing mothers due to possible passage of kava lactones into breast milk (7,10), compatible with breastfeeding, but caution should be exercised due to presence of kava lactones, women in some areas of New Guinea drank the traditional kava beverage during pregnancy to promote the flow of milk (2), no adverse effects expected at normal therapeutic doses despite caution from Commission E (8)

Piscidia erythina, Jamaican Dogwood

P3 – contraindicated in pregnancy (8), risk of causing foetal malformation or irreversible damage due to rotenone content, rotenone administered to rats resulted in an increased number of non-pregnant rats and resorptions as well as decreased maternal and fetal body weights, skeletal ossification and increased incidence of an extra rib, rotenone was also shown to inhibit ovulation in rat experiments (2), generally not recommended during pregnancy based in limited safety data, however cautious use may be acceptable for a limited number of conditions under supervision of a qualified practitioner, use is not recommended during 1st trimester at all (3), avoid using due to possible uterine depressant effects (4,10)
L3 – strongly discouraged while breastfeeding (2), likely unsafe, avoid using (4), not recommended due to lack of data (10)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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Plantago major, Plantain

P2 - class 1 (1), likely unsafe because it can increase uterine tone (4)

L2 - Class 1 (1), insufficient reliable data, avoid using (4)

Populus balsamifera, Poplar buds

P2 – class 1 (1), insufficient reliable data, avoid using (4,10)

L2 – class 1 (1), insufficient reliable data, avoid using (4,10)

Prunus serotina, Black Cherry (Wild Cherry)

P3- likely unsafe due to the cyanogenic glycoside prunasin content which is potentially teratogenic (4,7), no adverse effects expected (8), evidence of increased foetal damage occurred in pregnant sows after ingestion of *Prunus serotina* leaves, bark, and fruit, relevance to humans is unknown (2), not recommended due to lack of sufficient data (10)

L2 – insufficient reliable data, avoid using (4,10), no adverse effects expected (8), compatible with breastfeeding (2)

Pulsatilla pratensis, Pulsatilla (Pasque Flower)

P3 – contraindicated in pregnancy (3,4,7,8), risk of harmful effects on the foetus due to likely presence of protoanemonin, dried plant preparations are said to be contraindicated during pregnancy and the ingestion of fresh plants by cattle has been observed to lead to abortion and teratogenic effects, low doses of a fresh plant preparation were used by Eclectic physicians for nervous manifestations and urinary dysfunction during pregnancy (2), increased uterine activity has been documented, only preparations made from dried plant material should be used, fresh is toxic (3)

L3 – contraindicated in lactation (3,7,8) because of its gastrointestinal irritant effect (7), strongly discouraged while breastfeeding, dried plant preparations are said to be contraindicated in lactation, Eclectic physicians used low doses of a fresh plant preparation as a galactagogue in anxious women with painful swollen breasts (2), only preparations made from dried plant material should be used, fresh is toxic (3), likely unsafe, insufficient reliable information about the safety of dried pulsatilla while breastfeeding (4)

Rehmannia glutinosa, Rehmannia (raw)

P3 – not to be used during pregnancy (1), uncured rehmannia is avoided in pregnancy in TCM patterns of deficient blood, deficient spleen, or deficient stomach (2,7), evidence of increased foetal damage in animal studies exists although the relevance to human is unknown, subcutaneous administration of rehmannia aqueous extract administered to mice for 5 days reduced litter numbers, this antifertility effect was not associated with systemic toxicity or interruption of the oestrus cycle (2), insufficient reliable information, avoid using (4), no adverse effects expected (8), safety in pregnancy is not established (3), not recommended due to lack of sufficient data (10)

L2 - insufficient reliable information, avoid using (4), no adverse effects expected (3,8), compatible with breastfeeding (2), not recommended due to lack of sufficient data (10)

Rehmannia glutinosa, Rehmannia (cooked)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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P3 – not to be used during pregnancy (1), evidence of increased foetal damage in animal studies exists although the relevance to human is unknown, subcutaneous administration of rehmannia aqueous extract administered to mice for 5 days reduced litter numbers, this antifertility effect was not associated with systemic toxicity or interruption of the oestrus cycle (2), insufficient reliable information, avoid using (4), no adverse effects expected (8), safety in pregnancy is not established (3), not recommended due to lack of sufficient data (10)
L2 - insufficient reliable information, avoid using (4), no adverse effects expected (3,8), compatible with breastfeeding (2), not recommended due to lack of sufficient data (10)

Rhamnus pershiana, Cascara sagrada

P3 – not to be used during pregnancy (1,4,10) due to possible stimulation of the endometrium which may provoke abortion (speculative) and the content of potentially mutagenic and genotoxic anthraquinones (*in vitro)* (7), avoid unless necessary due to theoretical questions, especially in the 1st trimester of pregnancy, traditional Chinese medicine contraindicates anthraquinone-containing herbs during pregnancy, no evidence for increased risk of malformation in a prospective study on 53 mother-child pairs exposed to cascara during the 1st trimester, but another study showed relative risk for benign tumours in children exposed during pregnancy was higher than expected, the statistical significance of this finding is unknown and independent confirmation is required (2), cascara is contraindicated during pregnancy by the British Herbal Compendium, however the caution seems excessive as long as dosage recommendations are followed and an excessively loose stool is not caused (8)
L2 – caution with breastfeeding, the American Academy of Pediatrics has judged cascara as compatible with breastfeeding, but there is insufficient information to rule out the appearance of active levels of anthracenes in breast milk when cascara is used by the mother, whereas significant quantities have not been detected when senna was consumed (2), cascara is contraindicated during pregnancy by the British Herbal Compendium, however the caution seems excessive as long as dosage recommendations are followed (8), should be avoided by nursing mothers due to excretion of anthraquinones in breast milk that may cause catharsis in infants (4,10) and passage into milk of potentially genotoxic components emodin and aloe-emodin (7)

Rheum spp., Chinese Rhubarb

P3 – not to be used during pregnancy (1,7) due to uterine stimulant action (*in vitro* or in animals) and the content of potentially mutagenic and genotoxic anthraquinones (*in vitro)* (7), possibly unsafe in medicinal amounts due to stimulant laxative effect (4), though no studies have explored the excretion of active principles into breast milk, small amounts of active metabolites from other anthraquinone-containing plants are known to be excreted into breast milk (10)
L3 - should be avoided by nursing mothers due to excretion of anthraquinones in breast milk that may cause catharsis in infants and passage into milk of potentially genotoxic components emodin and aloe-emodin (7,10), possibly unsafe in medicinal amounts due to stimulant laxative effect (4), cases of neonatal jaundice have been associated with rhubarb (10)

Rhodiola rosea, Rhodiola

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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P3 – safety in pregnancy has not been established (3), insufficient reliable information, avoid using (4), lack of data (10)
L2 – no expected contraindication in lactation (3), insufficient reliable information, avoid using (4), lack of data (10)

Rosmarinus officinalis, Rosemary

P2 – not to be used beyond culinary dosages during pregnancy due to abortifacient, emmenagogue, uterine stimulant effects, (1) and toxic side effects from components of the essential oil (7) and its ability to affect the menstrual cycle (3), rosemary has been shown to have an anti-implantation effect in rats without interfering with normal fetal development post-implantation and it has been used as an abortive in Brazilian folk medicine, not recommended during pregnancy (6,10), avoid if trying to conceive, no adverse effects expected during pregnancy (8), warnings to avoid use if trying to conceive are based on high doses (250-500mg/kg) fed to male rats for 63 days that resulted in decreased spermatogenesis and sperm motility (10), a 1925 reference indicates that rosemary was used to cause abortion, although in some cases rosemary was not the only ingredient being used and can not be proven to be the cause, the potential embryotoxicity has been attributed to the camphor content, however a study found that d-camphor showed no teratogenicity when fed orally to pregnant rats (2)
L2 – no adverse effects expected (8), compatible with breastfeeding (2), insufficient reliable information about the use of rosemary in medicinal amounts during lactation, avoid using (4), lack of data (10)

Checked against 1,2,3,4,5,6,7,8,9,10 – need to check 11,13 and Aviva Romm for study name below

Rubus idaeus, Red Raspberry leaf

P1 – class 1 (1), the safety of red raspberry leaf during pregnancy has been demonstrated, it appears the safest of all the herbs that could be considered for labor preparation, used to strengthen the uterus, improve labor outcome, and prevent excessive bleeding, recommended by herbalists and midwives as an infusion of 1-3 cups daily, some women report nausea when taking it during the 1st trimester which is likely due to the astringency of the herb (3), no adverse effects expected, but best to confine use to 2nd and 3rd trimesters (6,8) since raspberry leaf has a reputation of being a uterine stimulant, though this may only be the case when taken near term, if at all (2), it has been reported anecdotally that large amounts may induce labor if consumed during 1st and 2nd trimesters (10), avoid in pregnancy when there is a history of precipitate labor (hard, fast labor that comes on suddenly) due to uterine stimulant activity (*in vitro)*, however studies of humans who have used red raspberry leaf during pregnancy have not shown any adverse effects (7,10), 1 study indicates that approximately 63% of US midwives use red raspberry leaf to stimulate labor, although it has not been shown to be very effective at stimulating labor (3), 1 study showed a reduction in length of second stage labor and reduction of delivery by forceps (7), but it did not shorten the first stage of labor, which is contrary to popular belief [Simpson etal, 2001] (10), another study showed reduced rate of pre and post-term gestation and reduced need for obstetric interventions including c-section, forceps delivery, amniotomy, and vacuum extraction (3), some evidence for its safe use by nurse midwives to facilitate delivery (4), no proven increase in the frequency of malformation or other harmful effects on the foetus despite consumption by a large number of women, report of 1 woman who stopped taking red raspberry leaf during pregnancy after

Sources:
1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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experiencing an increased frequency of Braxton Hicks contractions and another woman ceased after an episode of diarrhea, however red raspberry leaf could not be confirmed as the cause in either case, pharmacological experiments have yielded conflicting data on uterine contraction and relaxation, but overall results imply a regulatory action on contractions (2)
L1 – class 1 (1), compatible with breastfeeding (2), no adverse effects expected (8), insufficient reliable information about its use in medicinal amounts while breastfeeding, avoid using (4)

Checked against 1,2,3,4,5,6,7,8,9,10,11,13 – need to check Mary Bove lecture to make sure info is correct
Rumex crispus, Yellow Dock
P2 – no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, anthraquinone-containing herbs are contraindicated in pregnancy by traditional Chinese medicine because of their promotion of downward movement (2), yellow dock is thought by some to fall into the category of harsh laxatives which are contraindicated during pregnancy (10), use with caution during pregnancy (8), however it has not been shown clinically to be associated with increased uterine activity, it is considered a milder laxative than other anthraquinone-containing herbs, and is used by many midwives in combination with dandelion root and blackstrap molasses as an herbal tonic to treat iron deficiency anemia, especially when constipation is present (3), while the use of yellow dock by herbal practitioners during pregnancy is popular due to its iron content, this use has not been proven in clinical trials (10), small doses in tincture form may be used for nausea associated with pregnancy [Mary Bove, lecture at Gaia Symposium 6/12], possibly unsafe, avoid using (4)
L2 – compatible with breastfeeding, but use caution, small amounts of anthraquinone metabolites may pass into the breast milk, though significant quantities were not found to pass into breast milk in the case of senna which contains a higher quantity of anthraquinones to begin with (2), use caution due to anthraquinones which can pass into breast milk (3), possibly unsafe, avoid using (4)

Done
Salix alba, Willow Bark
P2 – class 1 (1), no adverse effects expected (8), specific data are lacking (4,12), combination of willow bark and primula root extracts did not have teratogenic effects in rabbits or negatively effect female rat reproduction, salicylates have been shown to cross the placenta and aspirin has been shown to be teratogenic in animals though it has not been linked to human malformations, salicylates in willow bark do not have the same pharmacology as those in aspirin (2), generally not advisable to recommend salicylate-containing medicines during pregnancy, but no direct restrictions exist for willow bark (6), evidence of human fetal risk with use (10)
L2 - specific data are lacking (12), no adverse effects expected (8), anecdotal information reports that salicylates in breast milk may have caused a rash in 1 breast-fed baby (10), possibly unsafe while breastfeeding due to salicylate content of bark, which is excreted in breast milk and has been linked to adverse effects in breast-fed infants including metabolic acidosis (4), strongly discouraged since salicylates are excreted in breast milk and hypersensitivity reactions may occur (2), generally not advisable to recommend salicylate-containing medicines during breastfeeding, but no direct restrictions exist for willow bark (6)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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Salvia miltiorrhiza, Dan Shen

P3 – contraindicated in pregnancy (3,9), avoid in pregnancy due in part to potentially increased risk of postpartum hemorrhage from platelet inhibition and fibrinolytic activity from inhibition of platelet cAMP phosphodiesterase (*in vitro)* (7), theoretically the blood thinning qualities of the herb could increase risk for miscarriage or bleeding (10) insufficient reliable information, avoid using (4), class 1 (1)

L3 – contraindicated in lactation (3,9), insufficient reliable information, avoid using (4,10), class 1 (1)

Salvia officinalis, Sage

P3 – contraindicated in pregnancy (1,3,8), sage products should not be used internally during pregnancy beyond minimal amounts in seasoned foods, the herb is strongly abortifacient and emmenagogic, even 1 tablespoon of dried herb taken as a tea has been known to cause a miscarriage (3), avoid in pregnancy due to emmenagogue and abortifacient effects (4), and potential for toxicity to the fetus, all of which are associated with the thujone content in the essential oil and alcoholic extracts (7), theoretically contraindicated during pregnancy due to thujone content which is potentially toxic and poses the risk of harmful effects on the foetus, the anti-implantation effects of oral consumption of aqueous and ethanolic extracts of sage leaf were studied on rats, both of which were found to be inactive (2), may have effects on prolactin, based on a study of combined sage leaf and alfalfa used by menopausal women for reduction of night sweats which showed a significant increase in prolactin in some women (10)

L3 – contraindicated during breastfeeding except for the purpose of stopping milk flow (2,7,8), traditionally used to reduce lactation (1,4), it has also been used topically for this effect (2), "Van Swieten stated that a vinous [containing or pertaining to wine] infusion forms an excellent fomentation to the breasts, when it is desirable to check the flow of milk" (13)

Sambucus spp., Elder Berry

P2 – class 1 (1), insufficient reliable information, avoid using (4), one report of GI upset from a pregnant woman using elderberry (10), *Sambucus canadensis* used by many Native Americans as food [cooked, dried, and raw], though considered both cathartic and purgative according to the Micmac, *Sambucus nigra* berries also used as food by the Cherokee (11)

L1 – class 1 (1), insufficient reliable information, avoid using (4), *Sambucus canadensis* used by many Native Americans as food [cooked, dried, and raw], though considered both cathartic and purgative according to the Micmac, *Sambucus nigra* berries also used as food by the Cherokee (11)

Sambucus spp., Elder Flower

P2 – class 1 (1), no adverse effects expected (8), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), insufficient reliable information, avoid using (4), a multi-ingredient product containing elder flower (Sinupret) showed no excess teratogenicity compared to controls (10)

L1 – compatible with breastfeeding (2), no adverse effects expected (8), insufficient reliable information, avoid using (4), infusion of *Sambucus canadensis* flowers used by Delaware, Oklahoma,

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and Mohegan for infants with colic, though "infusion of blossoms given as a physic" by the Iroquois and considered purgative by the Micmac [the word physic can mean either healing medicine or cathartic] (11)

Schisandra chinensis, Schisandra

P2 - not recommended due to lack of sufficient data (10), not recommended (6), contraindicated in pregnancy, except to assist birth & labor (7,8), avoid using due to possible uterine stimulant activity (4), uterine stimulant activity was shown in nonpregnant, pregnant, and postpartum uteri in isolated tissue and in vivo, subcutaneous injection increased uterine contractility in rabbits (2), a 1954 human study evaluated the effects of schisandra (25-20 drops of a 1:3 extract tid for 3 consecutive hours for 3 days) in stimulating labor and found that the activity was most pronounced in women who had previously given birth, resulting in intensification of labor after 2nd dose and shortened labor time without any negative side effects on blood pressure, elimination of placenta, or postnatal health of mother or infant, the same group of researchers reported an increase in the amplitude of uterine contractions and uterine tension in pregnant rabbits using the same extract, a 1968 study on pregnant women with arterial hypotension using 30-40 drops of a 1:10 tincture tid found a general improvement in symptoms (headache, noise in ears, dizziness) and an increase in work capacity, the treated women had a lower percentage of postpartum hemorrhaging than untreated hypotensive subjects, another study, a 1994 study administered schisandra (no information on preparation or dosage) to pregnant women who were being exposed to constant low level radiation due to living in the Bryansk region of Russia in the area of the Chernobyl nuclear reactor accident and found that placental insufficiency improved, fetal protein status was stabilized, obstetrical complications were reduced, and the health status of the newborn was improved (12), oral administration of schisandra to rats and mice did not result in foetoxicity, changes in implantation efficiency, or any other measures of reproductive function (2)

L2 - specific data are lacking, but based on a review of the available literature and the experience of practitioners, no negative effects are to be expected (12), insufficient reliable information, avoid using (4,10), no data available (2), class 1 (1)

Scrophularia nodosa, Figwort

P2 - insufficient reliable information, avoid using (4), lack of data (3), "the root, in decoction, and drank freely, is said to restore the lochial [postpartum] discharge when suppressed" (13), decoction of roots of *Scrophularia lanceolata* used by the Iroquois after birth for hemorrhage, "blood," and prevention of cramps and cold (11)

L2 - insufficient reliable information, avoid using (4), lack of data (3)

Checked against 1,2,3,4,5,6,7,8,9 – need to check 11,13

Scutellaria baicalensis, Chinese Skullcap

P1 - class 1 (1), no adverse effects expected (8), safety in pregnancy is still unknown, but there is potential for its use in threatened miscarriage, it is used in TCM for restless fetus and toxemia of pregnancy, a combination with *Atractylodes macrocephala* had an anti-abortive effect in an animal study by inhibiting the interface of maternal-fetal immunity (6), insufficient reliable information, avoid

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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12. Upton, R. (1997-2008 monographs) *American Herbal Pharmacopoeia and therapeutic compendium.* Scotts Valley, CA: American Herbal Pharmacopoeia.
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using (4), a water extract was fed to pregnant mice (2g/kg, 8g/kg, and 32g/kg) and failed to cause any significant fetal malformations, though it did increase maternal liver and kidney weights at the highest dose (10)
L1 – compatible with breastfeeding (2), class 1 (1), no adverse effects expected (8), insufficient reliable information, avoid using (4)

Scutellaria laterifolia, Skullcap
P1 – class 1 (1), no increase in the frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, Eclectic texts indicate that a concentrated preparation was combined with other nervines and spasmolytics for various female disorders in both pregnant and non-pregnant women (2), no adverse effects expected (8), the sourcing is particularly important for use with pregnant women due to adulteration with the hepatotoxic herb *Teucrium* (3), insufficient reliable information, avoid using (4,10), no published data on use during pregnancy and no contraindications mentioned in the historical literature, Health Canada cautions against use but offers no explanation of why, in a survey of professional American medical herbalists several responded to regular use of skullcap during pregnancy with no adverse results noted (Upton R, DAyu RH, 2012)
L2 – class 1 (1), no adverse effects expected (8), insufficient reliable information, avoid using (4)

Serenoa repens, Saw Palmetto
P3 – class 1 (1), no adverse effects expected (8), no known restrictions, but not recommended for pregnant women due to potential hormonal activity (4,5), not recommended due to potential anti-androgenic activity such as inhibition of conversion of testosterone to dihydrotestosterone (DHT) which may effect formation of male genitalia in utero, also not recommended due to potential effects on estrogen receptors (10), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, saw palmetto is unlikely to be indicated for use with pregnant women (2), contraindicated during pregnancy
L2 – class 1 (1), no adverse effects expected (8), no known restrictions, but not recommended for lactating women due to potential hormonal activity (4,5), not recommended due to potential anti-androgenic activity such as inhibition of conversion of testosterone to dihydrotestosterone (DHT) which may effect formation of male infant genitalia, also not recommended due to potential effects on estrogen receptors (10), compatible with breastfeeding, a study on hamster ovary cells showed that a lipsterolic extract of saw palmetto completely inhibited the effects of prolactin, however the relevance to humans is unclear (2)

Silybum marianum, Milk Thistle
P1 – class 1 (1), no adverse effects expected (8), no increase in the frequency of malformation or other harmful effects on the foetus from limited use in women (2), silymarin extract was safely used at a dose of 210mg tid by 6 women with cholestasis [associated pruritis] of pregnancy for 15 days (7), another clinical trial using 400mg silymarin for 60 days showed positive effects on symptom relief and blood chemistries for pregnant women with intrahepatic cholestasis (3,10), note: these conditions usually affect women in the 2nd or 3rd trimester of pregnancy (Ed.), Reys et al reported that silymarin is safe to use with pregnant women for up to 3 weeks (10), no evidence of increased foetal damage in

Sources:
1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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animal studies, oral administration of silymarin extract to rabbits did not cause teratogenic effects compared to controls, a silymarin phospholipid compound showed a fetoprotective effect against ethanol-induced behavior deficits in rats (2), no known restrictions, animal reproductive studies did not show mutagenicity at relatively high doses (5), avoid in pregnancy due to emmenagogue effects (7), insufficient reliable information available to determine safety in pregnancy (6,10), insufficient reliable information, avoid using (4)

L1 – class 1 (1), compatible with breastfeeding (2), no adverse effects expected (8), insufficient reliable information, avoid using (4), there is insufficient information available to support the use of milk thistle while breastfeeding, however there has been historical use of milk thistle by herbalists to promote lactation and this use may have originated with the fable that the white veins of the plant's leaves contain the milk of the Virgin Mary (10)

Smilax spp., Sarsparilla

P2 – class 1 (1), limited data (3), no adverse effects expected (8), insufficient reliable information, avoid using (4,10)

L2 – class 1 (1), limited data (3), no adverse effects expected (8), insufficient reliable information, avoid using (4,10)

Solidago spp., Goldenrod

P2 – no adverse effects expected (8), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), limited data (3), insufficient reliable information, avoid using (4,10), a combination product called Phytodolor is used to treat arthritis and contains aspen, ash, and goldenrod, it is not recommended during pregnancy due to lack of evidence, a plant called rayless goldenrod (*Haplopapppus hertrophyllus)* contains a toxic substance presumed to be tremetol or tremetone that passes through the milk and is responsible for the intoxication and death of livestock as well as humans who have consumed milk from intoxicated cows (10)

L2 - no adverse effects expected (8), compatible with breastfeeding (2), limited data (3), insufficient reliable information, avoid using (4), a plant called rayless goldenrod (*Haplopapppus hertrophyllus)* contains a toxic substance presumed to be tremetol or tremetone that passes through the milk and is responsible for the intoxication and death of livestock as well as humans who have consumed milk from intoxicated cows (10)

Stachys officinalis, Wood Betony

P2 – class 1 (1), insufficient reliable information, avoid using (4), should not be used during pregnancy due to a traditional use for amenorrhea, suggesting a uterine stimulant action (10)

L2 – class 1 (1), insufficient reliable information, avoid using (4,10)

Stevia rebaudiana, Stevia

P2 - class 1 (1), insufficient reliable information, avoid using (4), according to the FDA, whole leaf stevia has not been granted GRAS status, whereas certain Rebaudioside A products which are made from stevia have been granted GRAS status (Ed.)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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13. Felter, H.W. & Lloyd J.U. (1898). *King's American Dispensatory*. Sandy, OR: Eclectic Medical Publications (1983).

L2 – class 1 (1), insufficient reliable information, avoid using (4), according to the FDA, whole leaf stevia has not been granted GRAS status, whereas certain Rebaudioside A products which are made from stevia have been granted GRAS status (Ed.)

Tanacetum parthenium, Feverfew

P3 – not to be used during pregnancy (1,3,5,6), due to reported abortifacient activity, it has been reported to induce uterine contractions in full-term pregnant women (3), avoid in early pregnancy due to emmenagogue effect, fetal damage occurred in rats after oral consumption of very high doses (7) resulting in reduced fetal weights and enlarged placentae (2), doses during pregnancy should be kept to a minimum of no more than 1.5ml per day of a 1:5 dried plant tincture (8) or 500mg per day (2), according to one source feverfew caused abortion in grazing cows (presumably after intake of large amounts), but no specifics were provided (2), insufficient reliable information, avoid using (4,10), traditional experience suggests possible emmenagogic and abortifacient effects (10)

L3 – contraindicated during lactation (3,5), no adverse effects are expected as long as recommended dosages are not exceeded, daily dosage range is 1-3ml of a 1:5 dried plant tincture (8), no data available (2), insufficient reliable information, avoid using (4,10)

Taraxacum officinalis, Dandelion Leaf & Root

P1 – class 1 (1), the root has no known contraindications during pregnancy when used in amounts comparable to food, the leaf is also acceptable as a food, but should not be used to cause diuresis which is not appropriate during pregnancy (3), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), no adverse effects expected (8) based on a long history of use in traditional medicine, dandelion is generally considered safe in pregnancy (6), insufficient reliable information available, avoid in amounts greater than those in food (4,10)

L1 – class 1 (1), compatible with breastfeeding (2), no adverse effects expected (8), based on a long history of use in traditional medicine, dandelion is generally considered safe in lactation (6), insufficient reliable information available, avoid in amounts greater than those in food (4,10)

Checked against 1,2,3,4,5,6,7,8,9 – need to check 10,11,13

Thuja occidentalis, Thuja

P3 – contraindicated during pregnancy (8) both orally and topically, known neurotoxicity (3), likely unsafe during pregnancy due to abortifacient activity, avoid using (4), not recommended during pregnancy due to abortifacient, emmenagogue, and uterine stimulant activity and thujone content (1,7), high risk of foetal malformation or irreversible damage, thuja infusion, tincture, and essential oil have been used as abortifacients in humans, thuja may cause abortion by stimulating uterine contractions, thuja has been shown to stimulate contractions in isolated uteri (2)

L3 – contraindicated during lactation (8) both orally and topically known neurotoxicity (3,4), should not be used while nursing due to potential toxicity of its essential oil thujone (2,7)

Thymus vulgaris, Thyme

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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P3 – not for internal used during pregnancy (topical and suppository use is acceptable) other than amounts typically consumed in foods (3), likely safe when used in amounts commonly found in foods, it has GRAS status, insufficient reliable information regarding its use in medicinal amounts during pregnancy, avoid using (4), avoid high doses in early pregnancy due to emmenagogue and abortifacient effects (7), essential oil not recommended during pregnancy (6), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, a 1913 German reference indicates that thyme leaf has been used as an abortifacient, thymol was part of a formula containing soap, potassium iodide, and astringents that was used into the 1970s by doctors to procure abortion but was associated with a number of maternal deaths, ingestion of large doses of thymol (more than 1g) may produce abortion, *in vitro* research showed binding to estradiol and progesterone receptors (2), no adverse effects expected (8), class 1, several authors list thyme as an emmenagogue or note that the essential oil should be avoided in pregnancy (1)
L2 – contraindicated during lactation other than in amounts typically consumed in foods (3), likely safe when used in amounts commonly found in foods, it has GRAS status, insufficient reliable information regarding its use in medicinal amounts during lactation, avoid using (4), compatible with breastfeeding, no adverse effects expected (8), class 1 (1)

Tilia spp.,
P2 – class 1 (1), no adverse effects expected (8), limited data (3), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), insufficient reliable information, avoid using (4)
L1 – class 1 (1), no adverse effects expected (8), limited data (3), compatible with breastfeeding (2), insufficient reliable information, avoid using (4)

Trifolium pratense, Red Clover
P3 – standardized isolflavone extracts should not be used during pregnancy due to potential for estrogenic activity (3), not to be used during pregnancy (1), scientific evidence for the use of red clover during pregnancy has not been established, no teratogenicity data are available, use is not recommended (6), avoid in pregnancy (speculative) due to rat studies that showed reduced birth weights, perineal defect, and delayed puberty with high genistein doses (7), no adverse effects expected (8), likely safe when used orally in amounts commonly found in foods, likely unsafe when used in medicinal amounts due to estrogenic activity, insufficient reliable information regarding topical use during pregnancy as well (4)
L2 - standardized isolflavone extracts should not be used during lactation due to potential for estrogenic activity (3), no adverse effects expected (8), likely safe when used orally in amounts commonly found in foods, likely unsafe when used in medicinal amounts due to estrogenic activity, insufficient reliable information regarding topical use during lactation as well (4)

Trigonella foenum-graecum, Fenugreek
P3 – not to be used during pregnancy (1), not for medicinal use during pregnancy because of possible hypoglycemic and hypothyroid effects (3) dietary amounts are likely to be safe, but larger doses have not been scientifically evaluated (6), excessive amounts should be avoided in pregnancy due to

Sources:
1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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emmenagogue and abortifacient effects and its uterine stimulant action (4), shown *in vitro* or in animals, as well as toxicity to the fetus shown in animals (7), no increase in the frequency of malformation or other harmful effects on the foetus from limited use in women, evidence of increased foetal damage in animal studies exists, although the relevance to humans in unknown, traditional use of fenugreek among women surveyed in India has conflicting results with many women using the herb while pregnant, some consuming it in a special food called methipak thought to be beneficial specifically for pregnant and nursing women, and others avoiding fenugreek due to the belief that is abortifacient (2), no adverse effects expected (8),
L1 – compatible with breastfeeding, 10g/day significantly increased milk yield in goats compared to controls, methipak – a food made of wheat, fat, sugar, and generous amounts of fenugreek – is a well accepted food throughout India and considered a galactagogue and strengthener of the mother-child bond, a 1985 survey found that 85% of 662 women surveyed used methipak during lactation and described benefits of reduction in body aches, galactagogue, and strengthening qualities, it was taken during the last trimester of pregnancy for 1-2 months and from 10 days postpartum for 1-2 months at levels of 50g/day in the morning (2), if nursing mothers consume a large amount, the baby's urine may have a maple syrup-like odor that could be confused with maple syrup urine disease (3), although fenugreek has been used for centuries to improve lactation, no controlled studies are available to confirm effectiveness (6), traditionally used to promote lactation, no adverse effects expected (8), insufficient reliable information, avoid use (4)

Triphala – Amalaki (*Emblica officinalis)*, Terminalia (*Terminalia bellerica)*, Terminalia (*Terminalia chebula)*

P2 – *Emblica officinalis* - insufficient reliable information, avoid using (4), *Terminalia bellerica* – class 1 (1), Chevallier's Encyclopedia of Medicinal Plants lists *Terminalia bellerica* and *T. chebula* as contraindicated during pregnancy, but the reason is not given (4)
L2 - *Emblica officinalis, Terminalia bellerica, T. chebula* - insufficient reliable information, avoid using (4)

Turnera diffusa, Damiana

P3 – no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, has been used as an emmenagogue and as an aid to childbirth in traditional Mexican medicine (2), not recommended during pregnancy due to possible cyanogenetic constituents (3), class 1 (1), no adverse effects expected (8)
L3 – no data available (2), not recommended during pregnancy due to possible cyanogenetic constituents (3), class 1 (1), no adverse effects expected (8)

Done

Ulmus rubra, Slippery Elm

P1 – class 1 (1), likely to be safe, but safety still needs to be established (6), no formal reports on the safety of oral consumption in pregnancy, used by some herbalists for reduction of heartburn in pregnant women, due to its widespread use as a food, its benign constituent profile, and long history of safe use there is no rationale for avoiding ingestion during pregnancy, some popular sources (e.g.

Sources:

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Drugs.com 2010, Wikipedia 2010) erroneously report that slippery elm is abortifacient orally, this claim is a result of slippery elm branches and sticks having been used to perform abortions which resulted in death due to hemorrhage or bacterial infection, additionally some Native American nations (e.g. Cherokee) believed that the slippery quality of the mucilage helped facilitate the smooth delivery of a baby, which could lead some to mistakenly imply an abortifacient activity (12), insufficient reliable information available, no reliable information available about whether slippery elm has abortifacient activity when taken orally (4), avoid during pregnancy due to potential contamination with whole bark which may possess abortifacient properties (10)
L1 – class 1 (1), due to its widespread use as a food, its benign constituent profile, and long history of safe use there is no rationale for avoiding ingestion during lactation (12)

Checked against 1,2,3,4,5,6,7,8,9 – need to check 10,11,13

Uncaria tomentosa, Cat's Claw

P3 – substantial risk of causing foetal malformation or irreversible damage (2), avoid in pregnancy and women trying to conceive (2,3,4,7), in Peruvian traditional medicine, high doses of cat's claw root decoction are administered as a contraceptive, the bark decoction is also traditionally prescribed as a contraceptive in Peru and for irregular menstruation in Bolivia, pregnancy was prevented in mice fed *Uncaria tomentosa* extract, a high number of abnormal embryos were observed in mice fed *U. tomentosa* in their water for 72 hours post-copulation suggesting an embryotoxic effect (2), cat's claw contains rhynchophylline, a uterine stimulant alkaloid (7), lack of data regarding its effects on the immature immune system (5), root has been used traditionally as a contraceptive, pharmacologic results have demonstrated antifertility effect in one animal model, oral use of bark decoction is traditionally used in Bolivia for irregular menstruation (8)
L3 – contraindicated during lactation (3), compatible with breastfeeding, but caution should be used (2,8), manufacturers of standardized POA preparations recommend that cat's claw is contraindicated during lactation due to lack of clinical data of the effect of cat's claw on the immature immune system, however cat's claw is used in traditional Peruvian medicine for recovery after childbirth suggesting that it is used during early lactation (2), insufficient reliable information, avoid using (4)

Urtica dioica, Stinging Nettles

P1 – strong infusions of nettle leaf are popular among midwives for treating iron deficiency anemia in pregnant women, midwives and pregnant women report good results for diminished symptoms of fatigue and other anemia-related symptoms, a 1975 Farnsworth article reported stinging nettle to be a potential abortifacient and its constituent 5-hydroxytryptamine (serotonin) to be a uterine stimulant, this information is the basis for sources that contraindicate the use of nettles during pregnancy, however frequent use of large quantities by midwives has not demonstrated evidence of increase in uterine activity, miscarriage, or malformation in the offspring (3), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, the lignans in nettle, as well as their metabolites, are known to bind to sex hormone binding globulin *in vitro* which may provide an explanation for use of the root in benign prostatic hyperplasia (BPH), but it is not thought to pose a risk in pregnancy (2), no adverse effects expected for either leaf or root (8), avoid excessive internal use during pregnancy due to emmenagogue and abortifacient

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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12. Upton, R. (1997-2008 monographs) *American Herbal Pharmacopoeia and therapeutic compendium.* Scotts Valley, CA: American Herbal Pharmacopoeia.
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effects (empirical) and uterine stimulant action of its serotonin constituent (*in vitro* or in animals) (7), use during pregnancy is contraindicated by WHO due to its effects on hormones (6), likely unsafe during pregnancy due to possible abortifacient and uterine-stimulant activity (4), class 1 (1)
L1 – both leaf and root are compatible with breastfeeding (2), no adverse effects expected for either leaf or root (8), class 1 (1), insufficient reliable information, avoid using (4)

Usnea spp., Usnea
P2 – safety in pregnancy is not established, therefore, use topically (including vaginal suppositories) only (3), class 1 (1), insufficient reliable information, avoid using (4)
L2 – insufficient reliable information, avoid using (4)

Done
Vaccinium macrocarpon, *Vaccinium oxycoccus*, Cranberry fruit
P1 – based on historical use, daily use of cranberry juice is believed by many experts to be safe in recommended amounts for the prevention of asymptomatic bacteriuria in pregnancy, with the most common adverse effect being gastrointestinal upset, however, high-quality safety studies are lacking in this area (10), insufficient reliable data (4,12), no proven increase in the frequency of malformation or other harmful effects on the foetus, despite consumption by a large number of women, safe and widely used prophylactically as a beverage against urinary tract infections, may increase urinary oxalate (2), no known restrictions (5), likely to be safe when consumed in dietary amounts, unknown safety in larger quantities (6)
L1 – compatible with breastfeeding (2), no known restrictions (5), insufficient reliable data (4,12)

Vaccinium myrtillus, Bilberry fruit
P1 – class 1 (1), presumed to be safe on the basis of its use as a food, one study used bilberry extract to treat pregnancy-induced lower extremity edema and reported no adverse effects (10), no proven increase in the frequency of malformation or other harmful effects on the foetus despite consumption by a larger number of women, uncontrolled studies involving over 200 women collectively have reported bilberry extract as safe and effective treatment for venous disorders including hemorrhoids, doses ranged from 57-173 mg/day anthocyanins and were administered for 60-102 days (2), one study of 54 pregnant women treated for vascular insufficiency with Tegens (320mg anthocyanins daily for 60-90 days beginning in the 6th month of pregnancy) reported no adverse effects, another study on 51 pregnant women using Myrtocyan (160-320mg daily for 90 days) for treatment of vascular insufficiency and hemorrhoids made no reference to adverse effects, animal studies have not shown teratogenic or mutagenic effects (12), bilberry extract standardized to 36% anthocyanins did not demonstrate teratogenic activity or adversely effect fertility in rats, oral administration of anthocyanins (360mg/kg) failed to demonstrate teratogenic activity in 3 generations of rats and rabbits (2), no known restrictions (5), insufficient reliable data about the safety of medicinal dosages during pregnancy (4), dosage of 160-340mg per day taken in 2 or 3 divided doses depending on the severity of the condition is recommended for gestational hemorrhoids and venous insufficiency during pregnancy by Aviva Romm, as well as in liquid extract form and taken prophylactically during pregnancy by women with a predisposition to varicosities (3)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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13. Felter, H.W. & Lloyd J.U. (1898). *King's American Dispensatory*. Sandy, OR: Eclectic Medical Publications (1983).

L1 – class 1 (1), based on a review of the available literature, the experience of modern practitioners, and the high level of safety of bilberry when consumed as a food, no adverse effects are to be expected (12), presumed to be safe on the basis of its use as a food (10), compatible with breastfeeding, no adverse effects expected despite being listed as an antigalactogogue in Grieve's traditional herbal (2), insufficient reliable data about the safety of medicinal dosages during breastfeeding (4)

Valeriana officinalis, Valerian

P2 – class 1 (1), no restrictions known, no significant toxicity shown in animal tests, none reported in clinical studies, but safety is not well established (6), no adverse effects expected (8), no problems were noted in 3 cases of intentional overdose with 2-5g of valerian during weeks 3-10 of pregnancy (2), based on a review, valerian is one of the most commonly used herbs during pregnancy and was not associated with any negative outcomes, though it is not recommended due to theoretical concern over teratogenic effects of velepotriates which have been shown to be cytotoxic and mutagenic *in vitro*, however valepotriates degrade rapidly and are typically not found in commercial preparations (10,12) and are poorly absorbed by the body and subject to significant 1st pass effect, rat studies using valepotriates as well as valerian have not indicated changes in fertility, estrous phases, development of offspring, or any adverse reproductive outcome (10), though 1 rat study showed that valepotriates did increase the number of retarded ossifications (bone formations) upon internal inspection of rat foetuses (2), 1 animal study using high doses of valerian caused aberrations in chromosomes of the testis and induced spermatozoa abnormalities in mice (10), rat studies using high oral doses of an ethanolic extract showed reduced placental weights, but foetal weights were no different from controls and there was no difference in implantation or litter size (2), ESCOP and WHO contraindicate valerian during pregnancy due to the fact that its safety has not been established, however animal evidence indicates little to be concerned about (5), it is considered contraindicated in pregnancy due to lack of demonstrated safety and the mutagenic valepotriates, although the actual valepotriate content of commercial products has been found to be extremely low, a "stronger herb" to promote sleep and relieve anxiety during pregnancy (3), insufficient reliable data, avoid using (4)

L1 – specific data are lacking, based on review of the available literature, no negative effects are to be expected (12), caution not to over-sedate mother or child (7), compatible with breastfeeding, but use caution (2), ESCOP and WHO contraindicate with breastfeeding (5), insufficient reliable data, avoid using (4)

Checked against 1,2,3,4,5,6,7,8,9 – need to check 10,11,13

Verbascum thapsis, Mullein

P2 – no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking (2), no adverse effects expected (8), insufficient reliable information, avoid using (4), insufficient reliable information available, however Commission E states that no restrictions are known (6), lack of data (3), class 1 (1)

L2 – compatible with breastfeeding (2), no adverse effects expected (8), insufficient reliable information, avoid using (4), lack of data (3), class 1 (1)

Verbena hastata, Blue Vervain

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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13. Felter, H.W. & Lloyd J.U. (1898). *King's American Dispensatory*. Sandy, OR: Eclectic Medical Publications (1983).

P3 – not to be used during pregnancy (1,3,7), small amounts of verbalin stimulate the uterus in a frog model, possible abortifacient and/or oxytocic activity (3), emmenagogue effect in early pregnancy (empirical) (7), no adverse effects expected (8), insufficient reliable information, avoid using (4)
L2 - no adverse effects expected (8), insufficient reliable information, avoid using (4)

Veronicastrum viginicum, Culver's Root
P3 – possibly unsafe, anecdotally fresh root has been reported to be abortifacient, but no reliable scientific evidence on its safety in pregnancy exists, avoid until more is known (4)
L3 – insufficient reliable information, avoid using (4)

Done
Viburnum prunifolium, Black Haw
P1 – infusion of plant taken by the Micmac before and during parturition (11), long history of use by Western herbalists and Native Americans as a spasmolytic for threatened miscarriage, was officially listed in the United States Pharmacopoeia in 1882 and its use as an antispasmodic and preventative for miscarriage was popularized by the Eclectic physicians, small doses were considered and excellent *partus preparator* by the Eclectics to ease irregular contractions and "greatly facilitate a speedy and uncomplicated labor," also used for after pains and prevention of post-partum hermorrhage, still widely used by contemporary midwives and herbalists during labor to arrest uterine spasm when there is uterine cramping without cervical dilation and protracted early labor (3), no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, research on the activity of black haw published before 1940 is of questionable value, more recent studies confirm the uterine spasmolytic activity of black haw ethanolic extracts *in vitro* (2), according to secondary sources black haw is traditionally used to relax the uterus, reduce uterine contractility, and to prevent miscarriages, some research has been conducted on its potential effects on uterine activity (10) some of which suggests a uterine relaxing effect (4), the fluid extract has been found to be nonmutagenic using the Ames mutagenicity testing method (12), used by midwives as part of antihypertensive protocol for gestational hypertension combined with hawthorn and relaxing nervines such as passionflower (3), not recommended due to lack of scientific data (4,10), dosage: 3-10ml/day (3)
L1 – compatible with breastfeeding (2), specific data are lacking, based on review of the available literature, no negative effects are to be expected (12)

Viburnum opulus, Cramp Bark
P1 – class 1 (1), no increase in the frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, scopoletin did not demonstrate teratogenic activity in rats (by oral intubation during organogenesis period) (2), specific data are lacking, historically and in modern herbal therapy, cramp bark is used to prevent miscarriage (12), used during labor to arrest uterine spasm when there is uterine cramping without cervical dilation, long history of use by Western herbalists and Native Americans as a spasmolytic for threatened miscarriage, included in the British Herbal Pharmacopoeia and used by herbalists in the United Kingdom for miscarriage prevention (3), small doses were considered and excellent partus preparator by the Eclectics to ease

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
2. Mills, S. & Bone, K., (2005). *The Essential guide to herbal safety.* St. Louis, MO: Elsevier Churchill Livingstone.
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irregular contractions and "greatly facilitate a speedy and uncomplicated labor," also used for after pains and prevention of post-partum hermorrhage, still widely used by contemporary midwives and herbalists for uterine cramping and protracted early labor (3), insufficient reliable data, avoid using (4,10), decoction of branches of *Viburnum opulus* var. *americanum* used by Chippewa for fallen womb after birth, and in combination with other herbs to prevent hemorrhage after childbirth (11), dosage: 3-10ml/day (3)

L1 – class 1 (1), compatible with breastfeeding (2), no data available (12), insufficient reliable data, avoid using (4,10)

Viscum album, Mistletoe

P3 – likely unsafe, considered abortifacient (4), avoid in pregnancy due to uterine stimulant action shown by its constituent tyramine (*in vitro* or in animals) (7), no adverse effects expected (8)

L3 – likely unsafe, avoid using (4), no adverse effects expected (8)

Done

Vitex agnus-castus, Chaste Tree Berry

P2 – no increase in the frequency of malformation or other harmful effects on the foetus from limited use in women, no evidence of increased foetal damage in animal studies, use cautiously in pregnancy and only in the early stages for insufficient corpus luteal function (2,8), in prevention of miscarriage it is ideally given for at least 3 months prior to conception and continued well into first trimester to maintain stable progesterone levels, in the case of previous miscarriage it is suggested to continue its use until at least 2 weeks past the latest week's gestation of previous miscarriages (3), empirical evidence for its use during 1st trimester to prevent miscarriage due to progesterone insufficiency (1,7), anecdotal reports of herbalists and midwives using during 1st trimester of pregnancy with a history of miscarriage, specific data regarding its use in pregnancy are lacking, it is recommended that chaste tree not be used during pregnancy unless under the guidance of a qualified health professional (12), progesterone levels should be monitored in the early weeks of pregnancy if a decision to withdraw chaste tree is made before 4 months (5), rat studies have shown that prolactin increases progesterone by maintaining the structure & function of the corpus luteum after mating, thereby increasing progesterone release, prolactin does this by potentiating LH effects and by inhibiting the enzyme that breaks down progesterone into its inactive form (Freeman et al, 2000) (Ed.), no trials have been conducted to evaluate the claims of chaste tree's effects on progesterone or corpus luteal function, no toxicity or difference in offspring was seen in female rats given up to 80 times the dose used clinically in humans and no teratogenicity was seen in the offspring of rabbits given up to 74 times the recommended daily dose for humans (3), possibly unsafe during pregnancy due to theoretical hormonal effects (4), should not be used during pregnancy except under strict supervision due to uterine stimulatory properties (10)

L2 – both Dioscoredes and Pliny of ancient Greece recommended chaste tree to promote breast milk production, but no modern studies on its effect on lactation have been conducted and its use as a galactogogue is controversial since it has been shown to have prolactin-inhibiting effects, Low Dog and Micozzi state that lactogenic activity may be dose-dependent, but the only study showing its dose-dependent effects on prolactin was conducted on healthy males, it has been reported to increase milk

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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13. Felter, H.W. & Lloyd J.U. (1898). *King's American Dispensatory*. Sandy, OR: Eclectic Medical Publications (1983).

production without changing the composition of the breast milk (3), no known restrictions during lactation, but there is insufficient information regarding its influence on prolactin levels to reliably predict the effect it will have on lactating women, clinical and traditional use suggest a galactogogue effect, while *in vitro* and animal studies using a high dosage range suggest anti-galactogogue effect, more than 2 weeks use while nursing could lead to an early return to fertility (5), dopaminergic activity suggests chaste tree should be avoided during lactation, but clinical trials have demonstrated its positive effect on lactation at low doses (2,8), conflicting data and opinions regarding effects on lactation exist, pharmacological studies show inhibition of prolactin release in animal, *in vitro*, and human studies, suggesting it is not indicated in lactation, but historically it has been used to stimulate milk production and some modern herbalists and midwives report their use of it as a galactagogue, early human clinical trials reported an increase in quantity and free-flow of breastmilk in nursing mothers, however these studies have design or analysis limitations, one animal study reported negative effects on lactation including decreased milk consumption and a higher rate of mortality compared to non-treated animals, 1 study on healthy human males suggests a dose-dependence effect on prolactin levels with a low dose of 120mg resulting in increased prolactin and a high dose of 480mg resulting in a slight reduction in serum prolactin levels, further study is needed to address the appropriateness of chaste tree during lactation (12), possibly unsafe during lactation due to theoretical hormonal effects (4)

Withania somnifera, Ashwagandha

P2 – no increase in frequency of malformation or other harmful effects on the foetus from limited use in women, no evidence of increased foetal damage in animal studies, but 3 out of 5 Ayurvedic sources list it (plant part unspecified) as abortifacient, though other traditional sources cite its use for preventing miscarriage, to remove retained placenta, and as a nutritive tonic for pregnant women (2), conflicting reports regarding the use of ashwagandha in pregnancy, large but undefined doses have been reported to possess abortifacient activity, of several Ayruvedic practitioners consulted none reported having observed abortifacient activity clinically, conversely it has been used traditionally and in modern Ayurvedic practice to prevent miscarriage and stabilize the fetus, specific data regarding potential mutagenicity and reproductive effects are lacking, to err on the side of caution, it should not be used during pregnancy except under the direct supervision of a qualified health professional (12), alkaloids of the plant have shown uterine spasmolytic activity (9), no adverse effects expected (8), not recommended due to lack of sufficient data, may have abortifacient activity based on anecdotal reports, scientific data is lacking (10), not to be used during pregnancy, abortifacient (1,6,7), contraindicated in pregnancy by Aviva Romm (3)

L1 – compatible with breastfeeding, used to promote lactation in Ayurvedic medicine and the traditional medicine of southeast Asia, improved milk yield and quality in lactating cows, rats fed whole plant decoction throughout lactation produced offspring with higher than average body weight (2), no adverse effects expected (8), insufficient reliable data, avoid using (4) no data available (12)

Checked against 1,2,3,4,5,6,7,8,9 – need to check 10,11,13

Zanthoxylum clava-herculis, Prickly Ash

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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P3 – not to be used during pregnancy (1), no increase in the frequency of malformation or other harmful effects on the foetus from limited use in women, animal studies are lacking, the British Herbal Compendium contraindicates its use during pregnancy which may be due to the presence of alkaloids, however the Eclectic Physicians who introduced this herb into Western use do not caution against its use in pregnancy (2), however Brinker cautions against its use during pregnancy based on a reference to its emmenagogue effect by King's American Dispensatory (7), possibly unsafe when the bark is used orally, avoid using, insufficient reliable information about the berry during pregnancy, avoid using (4), no adverse effects expected (8)
L2 – insufficient reliable information, avoid using (4), compatible with breastfeeding (2), no adverse effects expected (8)

Zingiber officinale, Ginger

P1 – during pregnancy dose should not exceed 1g/day because of possible abortifacient activity, doses up to this amount considered safe for nausea and vomiting due to pregnancy (3), no proven increase in the frequency of malformation or other harmful effects on the foetus despite consumption by a large number of women, widely used in pregnancy with some proven benefit, however expert views on its safety are not consistent, it is the most popular self-medication among pregnant women (2), possibly safe when used medicinally for morning sickness, though there is some concern based on preliminary findings that ginger might affect fetal sex hormones, there is also an anecdotal report of a spontaneous abortion at 12 weeks for a woman who used ginger as an anti-nauseant, however studies show that pregnant women can safely use ginger for morning sickness without harm to the fetus and that the risk for malformations with its use is no higher than the baseline rate of 1 to 3% (4), its use was contraindicated by Commission E based on *in vitro* research on single compounds which formed the basis for other contraindications, a 2001 trial reported no adverse effects from ginger taken during pregnancy (5), doses up to 2g/day of dried ginger root have been used safely during pregnancy, no adverse effects on pregnancy were observed in multiple studies of ginger on nausea and vomiting (6), avoid using due to emmenagogue and abortifacient effects, rats consuming ginger tea regularly showed increased embryonic loss, however human trials involving 1g per day during early pregnancy showed a reduction of nausea and vomiting without an increase in adverse effects (7), a daily dose of 2g per day should not be exceeded during pregnancy (2,8), based on medicinal quantities (not culinary), fresh root = class 1, dried root = not to be used during pregnancy (1)
L1 – compatible with breastfeeding (2), insufficient reliable information, avoid using in quantities larger than found in foods (4)

Ziziphus jujuba, *Ziziphus spinosa*, Jujube

P2 – *Z. spinosa* commonly used in TCM including in formulas used during pregnancy (3), *Z. spinosa* = do not use in pregnancy due to its emmenagogue and uterine stimulant effects (7), no increase in frequency of malformation or other harmful effects on the foetus from limite use in women, animal studies are lacking (2), class 1 (*Ziziphus spinosa* = not to be used during pregnancy) (1), insufficient reliable information, avoid using (4)
L2- compatible with breastfeeding (2), insufficient reliable information, avoid using (4)

Sources:

1. McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds) (1997). *American Herbal Products Association's botanical safety handbook.* Boca Raton, FL: CRC Press LLC.
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