

Herbal medicine in pregnancy

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ABSTRACT

Background and aims: Herbal medicines are derived from natural plants with medicinal or preventive properties. Use of herbal remedies has increased despite lack of scientific evidence about their efficacy and safety during pregnancy.

Methods: This is an internet-based study. In this mini review, a publication search was conducted in the Medline, Google Scholar, and EMBASE databases, using a combination of medical subject headings (MeSH) and Black cohosh, Ginseng, Red Raspberry, Aloe vera, Chamomile, Chasteberry and Garlic keywords. The MeSH terms included herbal medicine, herbal products, pregnancy, and pregnant women.

Results: Herbal remedies are very common. Some information will list an herb as safe to consume during pregnancy, whereas another source may list the same herb as unsafe depending on the source. Although herbs are natural, not all herbs are safe to take during pregnancy.

Conclusion: Medicinal herbs can be very useful and effective during pregnancy. Despite the beneficial effects of herbs during pregnancy, use of certain herbal and traditional medicines without prior consultation with a health care professional may be harmful for pregnant women and their babies.

Keywords: Herbal medicine, Pregnancy, Medline.

Review article

INTRODUCTION

The use of herbal medicine to support health in pregnancy and facilitate childbirth is a common feature of many cultures worldwide.¹ Herbal medicines are derived from natural plants with medicinal or preventive properties.² Plants have been the basis for medical treatments through most of human history, and such traditional medicines are still widely used today.³

Modern medicine recognizes herbalism as a form of alternative medicine, as the practice

of herbalism is not strictly based on evidence gathered using the scientific method.⁴ It makes use of many plant-derived compounds as the basis for evidence-tested pharmaceutical drugs, and phytotherapy works to apply modern standards of effectiveness testing to herbs and medicines that are derived from natural sources.⁵ The scope of herbal medicine is sometimes extended to include fungal and bee products, as well as minerals, shells and certain animal parts.⁶

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The inclusion of herbal medicines within the definition of Complementary and Alternative Medicine (CAM) may actually give the impression that they are harmless and can be used without any precautions.^{7,8} Herbal drugs have the potential to elicit the same types of adverse reactions as synthetic drugs, since they consist of whole extracts or, more commonly, of defined parts of plants (roots, rhizomes, leaves, and flowering heads) that contain pregnancy and subsequent lactation have been an essential part of human existence for millennia, but unfortunately the experience has not been easy for all women.⁹ The increase in the use of natural health products, particularly herbal products, is noticed in all over the world. Exposures to over the counter products are frequent in pregnant women.¹⁰ Many active molecules for many women, natural health products such as herbal medicines or supplements may seem a reasonable as the lay media often portrays natural medicines.¹¹ While the true incidence of natural product use in pregnancy is not known, some studies suggest that as high as sixty percent of pregnant women use natural therapies including herbal medicines either during pregnancy or while planning.¹² Pregnant women often consider the use of natural products such as peppermint tea or ginger to help with symptoms of pregnancy such as nausea and vomiting. In one study of midwives practicing in North Carolina, half of the respondents admitted to recommending herbal medicines to their patients for pregnancy related conditions. It must be remembered that nearly half of all pregnancies are unplanned and unexpected exposures to medicines and supplements in the first trimester are not rare.¹³ Despite the prevalent use of natural health products by pregnant women, there is very little published evidence with regards to the safety and efficacy of natural health products during pregnancy and lactation.¹⁴

Many modern and classic texts warn against the use of natural product supplementation during pregnancy or lactation for up to one-third of the products listed in their monographs. However, most resources provide little information on the data used to evaluate reproductive toxicity apart from reports of historical use of herbs as abortifacients or uterine stimulants or animal data of genotoxicity or teratogenicity.¹⁵

Some of our earliest medicines were plants used to address the difficulties and complications of these biological processes and to better prepare the expectant mother for pregnancy, delivery, and lactation. In many parts of the world women still use herbal medicines even when attended by Western medicine.¹⁶ This mini review from an historical perspective of herbal use in pregnancy will first examine some of the herbal medicine that have been used during pregnancy and delivery and then during lactation. Reference will also be made to some of the scientific literature on these botanical medicines. The following is a review of plants with widely used in pregnancy.¹⁷

METHODS

This is an internet-based study. In this mini review, a publication search was conducted in the Medline, Google Scholar, and Embase databases, using a combination of medical subject headings (MeSH) terms and keywords. The MeSH terms included herbs, herbal medicine, herbal products, pregnancy, and pregnant women. We also used the names of Middle East countries as search terms (including Iran, Kuwait, Lebanon, Palestinian, Qatar, Syria, Yemen and United Arab Emirates). Total of twenty novel papers published between 2000 and 2015 about the roles of herbal medicine during pregnancy were included in the review. The sociodemographic profile of the pregnant

women from our studies in Middle East such as Iran, Oman, Palestine, Qatar, and

Egypt included for this review is shown in Table 1 and 2.

Table 1: User profile of studies on herbal medicine use among pregnant women from the Middle East in Iran

Variable	Tabatabaee et al., 2011 ¹⁸	Dabaghian et al., 2012 ¹⁹	Sattari et al., 2012 ^{20,21}	Khadivzadeh et al., 2012 ²²
Country	Iran	Iran	Iran	Iran
Number of women	513	600	400	919
Mean age/age groups (years)	≤25 (56.3%) 26-30 (30.0%) 31-35 (9.7%) >36 (3.9%)	27.03±4.8	26.4±5.2	25.7±5.1
Educational level/years of education	≤8 years: 63.5% 9-12 years: 25.1%; >12 years: 11.3%	Uneducated: 2.5% <12 years: 23.3% 12 years: 51.8% >12 years: 22.4%	High school: 46.0% Diploma: 36.8% Graduate: 17.3%	Illiterate: 2.7% Elementary school: 24.6% High school: 66.2% Academic studies: 5.9% Missing: 0.6%
Employment status	Homemaker: 94.3%	Homemaker: 87.2% Others :12.8%		Unemployed: 95.8% Other workers: 0.8% Employe: 2.7% Missing: 0.7%
Residence	Urban: 29.6% Rural: 70.4%	Urban: 81.7% Rural: 18.3%	Urban: 72.3% Rural: 27.8%	Urban: 13.7% Rural: 86.0% Missing: 0.3%
Parity/mean pregnancy number	Primipara: 58.5% Multipara: 41.5%	1.6 (0.81)	None: 50.0% One: 31.8% Two: 13.5%	

Table 2: User profile of studies on herbal medicine use among pregnant women from the Middle East in other countries

Variable	Al-Riyami et al., 2011 ²³	Sawalha et al., 2007 ²⁴	Hashim et al., 2005 ²⁵	Orief et al., 2012 ²⁶	Adawi et al., 2012 ²⁷
Country	Oman	Palestine	Qatar	Egypt	Palestine
Number of women	139	218	393	300	300
Mean age/age groups (years)	28±5	28.1±5.7	29	26.9±4.9	<20-22 (7.3%) 0-30 (69.7%) 31-40 (21.7%) >40 (1.3%)
Educational level/years of education	No schooling: 2.2% Primary: 15.8% Secondary: 44.6% College: 17.3% Higher education: 20.1%	Elementary: 40.8% High school: 39.9% University: 19.3%	Primary school: 3.5% Secondary school: 21.9% University: 74.6%	Illiterate: 4.0% Basic education: 19.0% secondary or higher: 77.0%	Primary and illiterate: 6.7% Middle school: 17.0% High school: 37.3% Diploma/university education: 39.0%
Employment status	Employed: 36% Unemployed: 64%				Employed: 5.7% Unemployed: 94.3%
Residence		Urban: 24.8% Rural: 70.2% Others: 5.0%			City: 23.0% Village: 67.3% Camp: 9.7%
Parity/mean pregnancy number		3.8(2.4)	Multiparous 66.7%	1.2±1.0	One: 32.0% More than one: 68.0%
Trimester	First: 7.2% Second: 36.0% Third: 56.8%	First: 6.0% Second: 8.7% Third: 67.0%		First: 33.3% Second: 33.3% Third: 33.3%	First: 33.3% Second: 33.3% Third: 33.3%

Strengthening herbs for pregnancy are defined as neither toxic nor strongly medicinal and therefore safe for regular consumption by pregnant women, and they

are providing nutrients or toning the uterus. Thereby, they are also supporting a healthy pregnancy and facilitating an easy delivery.²⁸ Red raspberry leaf users were less likely to

require vacuum extraction, forceps delivery, cesarean section or artificial rupture of membranes than women who did not use the herb. Although inconclusive, these findings suggest that red raspberry strengthens the muscles and ligaments involved in childbirth. Holistic practitioners may also recommend red raspberry as a treatment for menstrual

cramping and uterine prolapsed. A Large amount of study conducted by the Australian College of Midwives and they found that women who use red raspberry leaf during pregnancy had a significantly lower rate of pregnancy complications.²⁹ List of herbs which consider as safe in pregnancy shown in Table 3.

Table 3: Herbs Considered Safe in Pregnancy

Common Name	Botanical Name	Reason For Use	Clinical Trials In Pregnancy	Typical Daily Dose	Comments
Red raspberry leaf	Rubus Idaeus	Mineral rich nutritive tonic, uterine tonic to promote an expedient labor with minimal bleeding. Can also be used as an astringent in diarrhea.	Positive	1.5-5 g/day in tea or infusion	Highly astringent herbs can theoretically interfere with intestinal nutrient absorption
Echinacea	Echinasea Spp	Reduce duration recurrence of colds and URI	Positive	5-20 mL tincture	The dose listed here and considered safe by herbalists is higher than that used the study by Gallo et al.
Ginger	Zingiber officialis	anti-emetic	Positive	Up to 1 g dried powder/day	Higher doses of ginger are traditionally considered untreated in pregnancy can cause serious adverse outcomes
Cranberry	Vaccinum Macrocarpon	Prevent and relieve UTI	None identified	16-32 of juice/day	Untreated UTI in pregnancy can cause serious adverse outcomes
Chamomile	Matricaria Recutita	Promote general relaxation, treat insomnia, treat	None identified	1-5 g/day in tea	No reasonable contraindications. ¹⁷

Black cohosh, an estrogen-altering herb, is used extensively as a naturopathic treatment for menopause-related discomforts. The National Institutes of Health(NIH) report that black cohosh may affect the weight and consistency of the endometrium, or the lining of the uterus. However, no studies have sufficiently investigated black cohosh ability to strengthen the uterus. According to the NIH, black cohosh estrogenic effects may theoretically increase the risk of uterine cancer. Avoid black cohosh, if you have a history of any hormone-sensitive cancer.³⁰ The NIH additionally suggests that black cohosh supplements can increase the weight of the uterus and cause subtle changes in the cells of the uterus.³¹

Ginseng has been used since ancient times as a herbal remedy. The three main types of ginseng are American ginseng, Korean ginseng and Siberian ginseng. Avoid taking ginseng products during pregnancy, especially in the first trimester as it may cause serious adverse events in pregnancy.^{8,32}

Red Raspberry used for centuries to strengthen the uterus in preparation for childbirth, red raspberry leaf offers several benefits to the female reproductive system. A ten-year study conducted by the Australian College of Midwives found that women who use red raspberry leaf during pregnancy had a significantly lower rate of pregnancy complications. Holistic practitioners may also recommend red raspberry as a treatment for menstrual

cramping and uterine prolapse.³³ Red raspberry leaf users were less likely to require vacuum extraction, forceps delivery, cesarean section or artificial rupture of membranes than women who did not use the herb.³⁴ Although inconclusive, these findings suggest that red raspberry strengthens the muscles and ligaments involved in childbirth.³⁵

Ginger is commonly used to treat nausea, including post-chemotherapy, and for motion sickness. For the treatment of nausea and vomiting in pregnancy, about 7 clinical studies have been published.³⁶

Willets et al. conducted a randomized clinical trial in a population of 120 women at less than 20 weeks' gestation having symptoms of morning sickness.³⁷ The women were given Ginger extract equivalent to 1,500 mg daily for 4 days. After 4 days, there was an improvement in nausea and retching. In follow-up of birth outcomes, infants post-delivery had normal birth weight, gestational age, and APGAR scores, and the frequency of malformations was compatible with the normal population.

In other studies there have been variations in the dose. Fisher-Rasmussen et al. in 2006 gave a dose of 1000 mg as did Vutyavanish et al. (as dried Ginger) in a randomized controlled trial in 70 women and it was published in 2001.^{36,38} Nausea and vomiting decreased significantly, and there were no adverse events on pregnancy or pregnancy outcome. Keating and Chez published a trial in 2002 where they used ginger syrup.³⁹ Sripramote et al. gave 500 mg Ginger or 10 mg of Vitamin B6.⁴⁰ Nausea and vomiting were decreased significantly, with no adverse effects on pregnancy and pregnancy outcome.

Additional studies include those published by Portnoi et al. in 2003 and by Smith et al. in 2004.^{41,42} Women with suffering from nausea and vomiting of pregnancy commonly have difficulty in

swallowing capsules. Therefore, Ginger taken as a tea seems to work well.

Fresh garlic or garlic used in cooking appears to be safe in pregnancy. Avoid taking large amounts of garlic supplements because it could possibly increase the risk of bleeding, uterine contraction, pregnancy loss or early labor in pregnant women.^{43,44}

Herbalists have used chasteberry for thousands of years as a treatment for menstrual disorders, according to the National Center for Complementary and Alternative Medicine.⁴⁵ In antiquity, chasteberry was used to strengthen the uterus during pregnancy and to induce labor. However, no well-designed studies have evaluated its efficacy as a uterine stimulant.⁴⁶

Turmeric is a spice derived from the rhizomes of *Curcuma longa*, which is a member of the ginger family (*Zingiberaceae*). Coumarins are derived from cinnamic acid and are usually found in grasses and the pea family (such as clover). Curcumin has antioxidant, anti-inflammatory, antiviral and antifungal actions.⁴⁷ Dicumarol, the fermentation product of coumarin that is thought to inhibit vitamin K effects on coagulation biosynthesis due to its similarity in structure to vitamin K, is the anticoagulant from which warfarin was synthesized.⁴⁸ Studies have shown that curcumin is not toxic to humans. Curcumin exerts anti-inflammatory activity by inhibition of a number of different molecules that play an important role in inflammation. *Coumarins* are responsible for the scent of fresh cut grass. Many *coumarins*, if injected, are anticoagulants but most plant *coumarins* are neutralized in the digestive tract and so have very little anticoagulant effects when ingested. Derivatives of *coumarins* have antifungal properties (like umbelliferone from the parsley family) and vascular tone effects (like esculin from horse chestnut).⁴⁹

There is also substantial reason to believe it is safe for women to use curcumin

supplements during the second and third trimesters of their pregnancies.⁵⁰ There is no indication that taking curcumin can cause a pregnant woman to go into labor too soon. In fact, in studies of the isolated uterine tissue at the Samuel Lunenfeld Research Institute in Toronto, curcumin is used to inhibit muscle contractions. After the third month, one of the most important concerns is not going into labor too soon. Herbs that induce labor have to be avoided at least until the baby has reached full term.⁵¹ Curcumin by itself will not stop labor because it only affects one of the ways that the uterus is activated when the mother goes into labor, but pregnant women should, however, discontinue the use of curcumin at least a week before their due dates.⁵² Although there is no evidence that dietary consumption of turmeric as a spice adversely affects pregnancy or lactation, the safety of curcumin supplements in pregnancy and lactation has not been established.

Aloe vera gel is used as treatment for burns, wounds and other skin conditions. Topical use of *Aloe vera* is unlikely to cause an increased risk of pregnancy loss or birth defects.⁵³ *Aloe vera* latex is a yellow-coloured liquid that comes from the inner skin of the aloe ant. It is orally taken in both, dried and liquid form.⁵⁴

Rich in iron, this herb has helped tone the uterus, increased milk production, decreased nausea, and eased labor pains.⁵⁵ Some studies have even reported that using red raspberry leaf during pregnancy can reduce complications and the use of interventions during birth.⁵⁵ There is some controversy about whether this should be used throughout pregnancy or just in the second and third trimester. So, many health care providers remain cautious and only recommend using it after the first trimester.⁵⁶

Chamomile tea or tincture is used to calm an upset stomach and help with sleeping problems. Chamomile can also be found in skin products to treat dermatitis,

wounds and other skin conditions. There is very limited safety information available about chamomile use in pregnancy. However, no serious adverse events have been reported in pregnant women who drink chamomile tea.^{57,58}

Depending on the source, some information will list an herb as safe to consume during pregnancy, whereas another source may list the same herb as unsafe. Therefore, it is best to consult before taking any natural medicine or herb during pregnancy.⁵⁹ During the first 12 weeks and the last 12 weeks of pregnancy, it is best to avoid all herbal and traditional medicines. Before starting any herbal and traditional medicines, please talk to your doctor and pharmacist to ensure that the medicine is appropriate and safe for you to use during your pregnancy. Some organizations that specialize in herbs have done extensive testing on their safety. Often these organizations will list herbs with their safety ratings for the general population and for those who are pregnant or breastfeeding. These ratings can often be confusing and hard to interpret.¹⁵ One key thing when understanding the safety ratings is to pay attention to what type of use the rating is for. For example, the rating for rosemary is considered Likely Safe when used orally in amounts typically found in foods. (Rosemary has a Generally Recognized as Safe (GRAS) status in the US).⁶⁰ But in pregnancy, rosemary is considered possibly unsafe when used orally in medicinal amounts. Because rosemary may have uterine and menstrual flow stimulant effects. There is insufficient reliable information available about the safety of the topical use of rosemary during pregnancy. This is a prime example of how the method of use of the herb changes its safety rating.⁶¹

The following herbs are considered unsafe during pregnancy: Saw Palmetto (when used orally, has hormonal activity),

Goldenseal (when used orally, may cross the placenta), Dong Quai (when used orally, due to uterine stimulant and relaxant effects), Ephedra (when used orally), Yohimbe (when used orally), Pay D' Arco (when used orally in large doses; contraindicated), Passion Flower (when used orally), Black Cohosh (when used orally in pregnant women who are not at term), Blue Cohosh (when used orally; uterine stimulant and can induce labor), Roman Chamomile (when used orally in medicinal amounts), Pennyroyal (when used orally or topically).⁶²⁻⁷² Also, Pregnant women should avoid taking *Aloe vera* latex as it is a strong laxative and may cause uterine stimulation and pregnancy loss.⁷³

DISCUSSION

Although medicine has replaced most natural supplements with a synthetic substitute, there are many who still look to natural herbs and vitamins to provide essential nutrition and relief of common discomforts for pregnant women. Here, we examine herbs in relation to pregnancy.⁷⁴ Many herbalists believe that herbs are often better, cheaper, and healthier than their medical counterparts. However, many medical professionals do not recommend herbal remedies for pregnant women since safety has not been established through extensive research.¹⁴ Unlike prescription drugs, natural herbs and vitamin supplements do not go through the same scrutiny and evaluation process by the FDA. As a result, the quality and strength of an herbal supplement can vary between two batches of the same product and between products from different manufacturers.⁷⁵

The use of herbs for the treatment of common pregnancy symptoms is very common. Studies and surveys estimate that up to 45% of women use an herbal therapy at some points during pregnancy in united. Herbal remedies are seen by some as a

treatment to be preferred to pure medical compounds that have been industrially produced. The incidence of herbal medicines use among pregnant women from the Middle East varied from 22.3% to 82.3%.⁷⁶ Herbal remedies are very common in Europe, Asia and America. In Germany, herbal medications are dispensed by apothecaries (e.g., Apotheke). Prescription drugs are sold alongside essential oils, herbal extracts, or herbal teas states.¹¹ Most women, using herbal medicine through pregnancy were from rural areas, homemakers, and had an instructive qualification below graduation. This was in accordance with studies outside the Middle East which reported higher consuming of herbs among women from rural areas that were less informed.^{77,78}

The FDA urges pregnant women not to take any herbal products without talking to their health care provider first, although herbs are natural, not all herbs are safe to take during pregnancy.¹¹ Some contain agents that are contraindicated in pregnancy. Herbs may contain substances that can cause miscarriage, premature birth, uterine contractions, or injury to the fetus. Few studies have been done to measure the effects of various herbs on pregnant women or fetuses.⁷⁹ The evidences available to date imply that herbal medicine use in pregnancy is not innocuous.²⁸ In the light of a high prevalence of use of herbal medicines in pregnancy in developed and developing countries, there is an urgent need to evaluate the safety of phytomedicine use during pregnancy; and until definitive data emerge, we agree with Ernst that the best advice is to consider all herbal products contraindicated during pregnancy and to inform the pregnant women accordingly.

CONCLUSION

Medicinal herbs can be very useful and effective during pregnancy. Despite the

beneficial effects of herbs during pregnancy, use of certain herbal and traditional medicines without prior consultation with a health care professional may be harmful for pregnant women and their babies. It is always best to seek medical advice before using any herbal or traditional medicine during pregnancy.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests.

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