

Annex A - References

In this guide

[In this guide](#)

1. [Introduction - Second Draft Statement on the Safety of Ginger Supplement use in Pregnancy](#)
2. [Annex A - Second Draft Statement on the Safety of Ginger Supplement Use in Pregnancy](#)
3. [Annex A - Information on ginger](#)
4. [Annex A - Exposure](#)
5. [Annex A - Conclusions of the Committee](#)
6. [Annex A - References](#)
7. [Annex B - Summary of Studies](#)
8. [Annex C - Assessment of Exposure](#)

AlAskar, A; Shaheen, NA; Khan, AH; AlGhasham, N; Mendoza, MA; Matar, DB; Gmati, G; AlJeraisy, M; AlSuhaibani, A: (2020). [Effect of daily ginger consumption on platelet aggregation. Journal of Herbal Medicine](#). Volume 20, 100316. <https://doi.org/10.1016/j.hermed.2019.100316>.

Alnaqeeb MA, Thomson M, Al-Qattan KK, Kamel F, Mustafa T, Ali M. (2003): [Biochemical and histopathological toxicity of an aqueous extract of ginger](#). Kuwait J Sci Eng, 30: 35-48.

Al Omari, I; Afifi, F; Salhab, A. (2012). [Therapeutic Effect and Possible Herb Drug Interactions of Ginger \(Zingiber officinale Roscoe, Zingiberaceae\) Crude Extract with Glibenclamide and Insulin](#). Pharmacognosy Communications. 2. 12-20. DOI:10.5530/pc.2012.1.4

Altyn, I., & Twarużek, M. (2020). [Mycotoxin Contamination Concerns of Herbs and Medicinal Plants](#). Toxins, 12(3), 182. <https://doi.org/10.3390/toxins12030182>

The Committee on Toxicity of Chemicals in Food, Consumer Products and the environment (COT) (2020). [Scoping Paper on Herbal Supplements Used in](#)

Pregnancy.

The Committee on Toxicity of Chemicals in Food, Consumer Products and the environment (COT) (2021). [The potential effects that ginger and ginger supplements may have during pregnancy and lactation.](#)

DTU Food Institute, (2019). [The safety of pregnant women when ingesting ginger shots made from the root from real ginger \(Zingiber officinale Roscoe\).](#) (Available in Danish only).

Dietz, Birgit & Hajirahimkhan, Atieh & Dunlap, Tareisha & Bolton, Judy. (2016). [Botanicals and Their Bioactive Phytochemicals for Women's Health.](#) *Pharmacological reviews*. 68. 1026-1073. Doi:10.1124/pr.115.010843

Egashira, K; Sasaki, H; Higuchi, S; Ieiri, I (2012). [Food-drug Interaction of Tacrolimus with Pomelo, Ginger, and Turmeric Juice in Rats](#), *Drug Metabolism and Pharmacokinetics*, Vol 27, 2, 242-247. <https://doi.org/10.2133/dmpk.DMPK-11-RG-105>.

ElMazoudy, Reda & Attia, Azza. (2018). *Phytomedicine*. 50. 2018, 300-308, [Ginger causes subfertility and abortifacient in mice by targeting both estrous cycle and blastocyst implantation without teratogenesis.](#)

Ensiyeh, J.; Sakineh, M.A. (2009). [Comparing ginger and vitamin b6 for the treatment of nausea and vomiting in pregnancy: A randomised controlled trial.](#) *Midwifery* **2009**, 25, 649-653. <https://doi.org/10.1016/j.midw.2007.10.013>

European Commission (EC) (2023). Commission Regulation (EU) 2023/915 of 25 April 2023 on maximum levels for certain contaminants in food and repealing Regulation (EC) No 1881/2006. [Publications Office \(europa.eu\).](#)

European Medicines Agency (2012): [Assessment report on Zingiber Officinale Roscoe, rhizome](#); EMA/HMPC/577856/2010.

Finnish Food Authority, (2019). [General Instructions on Safe Use of Foodstuffs.](#)

Fischer-Rasmussen, W.; Kjaer, S.K.; Dahl, C.; Asping, U. (1991). [Ginger treatment of hyperemesis gravidarum.](#) *Eur. J. Obstet. Gynecol. Reprod. Biol.* 1991, 38, 19-24. [https://doi.org/10.1016/0028-2243\(91\)90202-v](https://doi.org/10.1016/0028-2243(91)90202-v).

Getaneh, A., Guadie, A., & Tefera, M. (2021). [Levels of heavy metals in ginger \(Zingiber officinale Roscoe\) from selected districts of Central Gondar Zone, Ethiopia and associated health risk.](#) *Heliyon*, 7(4), e06924.

<https://doi.org/10.1016/j.heliyon.2021.e06924>

Goroya K, Mitiku Z, Asresahegn Y, (2019). [Determination of concentration of heavy metals in ginger using flame atomic absorption spectroscopy](#). Afr. J. Plant Sci. 13, 163–167. DOI: 10.5897/AJPS2019.1787.

Healthline (2020). Ginger Tea in Pregnancy: Benefits, Safety, and Directions. Available at: [Ginger Tea in Pregnancy: Benefits, Safety, and Directions \(healthline.com\)](#).

Jiang, X., Williams, K. M., Liauw, W. S., Ammit, A. J., Roufogalis, B. D., Duke, C. C., Day, R. O., & McLachlan, A. J. (2005). Effect of ginkgo and ginger on the pharmacokinetics and pharmacodynamics of warfarin in healthy subjects. British journal of clinical pharmacology, 59(4), 425–432. <https://doi.org/10.1111/j.1365-2125.2005.02322.x>.

Kilic S, Soylak M (2020). J Food Sci Technol 57, 927–933 (2020). Determination of trace element contaminants in herbal teas using ICP-MS by different sample preparation method.

Kim, IS, Kim, SY, Yoo, HH (2012). Effects of an aqueous-ethanolic extract of ginger on cytochrome P450 enzyme-mediated drug metabolism. Die Pharmazie, 67(12), 1007–1009

Kimura Y, Ito H, Hatano T (2010). Effects of mace and nutmeg on human cytochrome P450 3A4 and 2C9 activity. Biol Pharm Bull. 2010;33(12):1977-82. doi: 10.1248/bpb.33.1977. PMID: 21139236.

Krüth P, Brosi E, Fux R, Mörike K, Gleiter CH (2004). [Ginger-Associated Overanticoagulation by Phenprocoumon](#). Ann Pharmacother. Feb;38(2):257-60. doi: 10.1345/aph.1D225.

Lippolis V, Irurhe O, Porricelli, ACR, Cortese M, Schena R, Imafidon T, Oluwadun A, Pascale M (2017). [Natural co-occurrence of aflatoxins and ochratoxin A in ginger \(Zingiber officinale\) from Nigeria](#). Food Control 2017, 73, 1061–1067.

Lumb A. B. (1994). Effect of dried ginger on human platelet function. Thrombosis and haemostasis, 71(1), 110–111. PMID: 8165628.

Mother and baby (2022) Available at: [Ginger in pregnancy: Safety, benefits and guidelines \(motherandbaby.com\)](#).

Mukkavilli, R., Gundala, S. R., Yang, C., Donthamsetty, S., Cantuaria, G., Jadhav, G. R., Vangala, S., Reid, M. D., & Aneja, R. (2014). [Modulation of cytochrome P450 metabolism and transport across intestinal epithelial barrier by ginger biophenolics](https://doi.org/10.1371/journal.pone.0108386). PloS one, 9(9), e108386. <https://doi.org/10.1371/journal.pone.0108386>.

Nirmala, K., Prasanna Krishna T. and Polasa, K. (2007). In vivo Antimutagenic Potential of Ginger on Formation and Excretion of Urinary Mutagens in Rats. International Journal of Cancer Research, 3: 134-142. [In vivo Antimutagenic Potential of Ginger on Formation and Excretion of Urinary Mutagens in Rats \(scialert.net\)](http://scialert.net).

NICE (2021). Antenatal care. Management of nausea and vomiting in pregnancy. Available at: <https://www.nice.org.uk/guidance/ng201/evidence/r-management-of-nausea-and-vomiting-in-pregnancy-pdf-331305934365>

NHS (2021) Vomiting and morning sickness. Available at: [Vomiting and morning sickness - NHS \(www.nhs.uk\)](http://www.nhs.uk) Accessed: 10/08/2023.

NHS (2021) Women and Health. Available at: [Nausea and vomiting in pregnancy \(wsh.nhs.uk\)](http://wsh.nhs.uk).

NHS Specialist Pharmacy Service (2022). Herbal medicines: safety during pregnancy. Available at: [Herbal medicines: safety during pregnancy - SPS - Specialist Pharmacy Service - The first stop for professional medicines advice](http://www.nhs.uk).

Okonta JM, Uboh M, Obonga WO. (2008). [Herb-drug interaction: a case study of effect of ginger on the pharmacokinetic of metronidazole in rabbit](https://doi.org/10.4103/0250-474X.41462). Indian J Pharm Sci. 2008 Mar-Apr;70(2):230-2. doi: 10.4103/0250-474X.41462. PMID: 20046719; PMCID: PMC2792472.

Omotayo, O. P., Omotayo, A. O., Babalola, O. O., & Mwanza, M. (2019). [Comparative study of aflatoxin contamination of winter and summer ginger from the North West Province of South Africa](https://doi.org/10.1016/j.toxrep.2019.05.011). Toxicology reports, 6, 489-495. <https://doi.org/10.1016/j.toxrep.2019.05.011>

Plengsuriyakarn, T.; Viyanant, V.; Eursitthichai, V.; Tesana, S.; Chaijaroenkul, W.; Itharat, A.; Na-Bangchang, K. (2012). [Cytotoxicity, Toxicity, and Anticancer Activity of Zingiber Officinale Roscoe Against Cholangiocarcinoma](https://doi.org/10.7314/apjcp.2012.13.9.4597), **Asian Pacific Organization for Cancer Prevention**, 13(9), pp. 4597-4606. doi: 10.7314/apjcp.2012.13.9.4597.

Portnoi, G., Chng, L. A., Karimi-Tabesh, L., Koren, G., Tan, M. P., & Einarson, A. (2003). [Prospective comparative study of the safety and effectiveness of ginger for the treatment of nausea and vomiting in pregnancy](https://doi.org/10.1067/s0002-9378(03)00649-5). *American Journal of Obstetrics and Gynecology*, 189(5), 1374-1377. [https://doi.org/10.1067/s0002-9378\(03\)00649-5](https://doi.org/10.1067/s0002-9378(03)00649-5)

Rubin D, Patel V, Dietrich E. (2019). [Effects of Oral Ginger Supplementation on the INR](https://doi.org/10.1155/2019/8784029). *Case Rep Med*. Jun 11; 2019:8784029. doi:10.1155/2019/8784029. PMID: 31281366; PMCID: PMC6594244.

Smith, C; Crowther, C; Willson, K; Hotham, N; McMillian, V. (2004). [A Randomized Controlled Trial of Ginger to Treat Nausea and Vomiting in Pregnancy](https://doi.org/10.1097/01.AOG.0000118307.19798.ec). **Obstetrics and Gynecology**. 103. 639-45. DOI: 10.1097/01.AOG.0000118307.19798.ec.

Srivas K. C. (1984). Effects of aqueous extracts of onion, garlic and ginger on platelet aggregation and metabolism of arachidonic acid in the blood vascular system: *in vitro* study. *Prostaglandins, leukotrienes, and medicine*, 13(2), 227-235. [https://doi.org/10.1016/0262-1746\(84\)90014-3](https://doi.org/10.1016/0262-1746(84)90014-3)

Srivastava KC (1986). [Isolation and effects of some ginger components of platelet aggregation and eicosanoid biosynthesis](https://doi.org/10.1016/0262-1746(86)90065-x). **Prostaglandins Leukot Med**. Dec;25(2-3): 187-98. doi: 10.1016/0262-1746(86)90065-x. PMID: 3103137.

Srivastava KC (1989). [Effect of onion and ginger consumption on platelet thromboxane production in humans](https://doi.org/10.1016/0952-3278(89)90122-1). **Prostaglandins Leukot Essent Fatty Acids**. Mar; 35(3):183-5. doi: 10.1016/0952-3278(89)90122-1 PMID: 2710801.

Stanisiere, J., Mousset, P. Y., & Lafay, S. (2018). [How Safe Is Ginger Rhizome for Decreasing Nausea and Vomiting in Women during Early Pregnancy?](https://doi.org/10.3390/foods7040050) **Foods (Basel, Switzerland)**, 7(4), 50. <https://doi.org/10.3390/foods7040050>

Thomson M, Al-Qattan KK, Al-Sawan SM, Alnaqeeb MA, Khan I, Ali M (2002). [The use of ginger \(Zingiber officinale Rosc.\) as a potential anti-inflammatory and antithrombotic agent](https://doi.org/10.1054/plef.2002.0441). *Prostaglandins Leukot Essent Fatty Acids*. Dec; 67(6):475-8. DOI: 10.1054/plef.2002.0441. PMID: 12468270.

Tiran, D. (2012). [Ginger to reduce nausea and vomiting during pregnancy: Evidence](https://doi.org/10.1016/j.cpt.2012.02.001)

[of effectiveness is not the same as proof of safety](https://doi.org/10.1016/j.cpt.2012.02.001). *Complementary Therapies in Clinical Practice* 18 (2012) 22-25.

Vutyavanich T, Kraissarin T, Ruangsri R. (2001). [Ginger for nausea and vomiting in pregnancy: randomized, double-masked, placebo-controlled trial](#). *Obstet Gynecol.* 2001 Apr;97(4): 577-82. DOI: 10.1016/s0029-7844(00)01228-x. PMID: 11275030.

Wagesho Y, Chandravanshi BS, (2015). [Levels of essential and non-essential metals in ginger \(Zingiber officinale\) cultivated in Ethiopia](#). SpringerPlus 4, 1-13. Doi: <https://doi.org/10.1186/s40064-015-0899-5>.

Wen J, Kong W, Hu Y, Wang J, Yang M (2014). [Multi-Mycotoxins analysis in ginger and related products by UHPLC-FLR detection and LC-MS/MS confirmation](#). *Food Control* 2014, 43, 82-87. doi: 10.1016/j.foodcont.2014.02.038.

Willetts KE, Ekangaki A, Eden JA. (2003). [Effect of a ginger extract on pregnancy-induced nausea: a randomised controlled trial](#). *Aust N Z J Obstet Gynaecol.* 2003 Apr;43(2):139-44. doi: 10.1046/j.0004-8666.2003.00039.x. PMID: 14712970.

Xu J, Zhang J, Lv Y, Xu K, Lu S, Xiaohui Liu, Yang Y, (2020). Effect of soil mercury pollution on ginger (Zingiber officinale Roscoe): [Growth, product quality, health risks and silicon mitigation](#). *Ecotoxicology and Environmental Safety*, Volume 195, 2020, 110472, ISSN 0147-6513. <https://doi.org/10.1016/j.ecoenv.2020.110472>

Young HY, Liao JC, Chang YS, Luo YL, Lu MC, Peng WH (2006). [Synergistic effect of ginger and nifedipine on human platelet aggregation: a study in hypertensive patients and normal volunteers](#). **The American Journal of Chinese Medicine.** 34(4):545-551. DOI: [10.1142/s0192415x06004089](https://doi.org/10.1142/s0192415x06004089)

Yu, Y., Zick, S., Li, X., Zou, P., Wright, B., & Sun, D. (2011). [Examination of the pharmacokinetics of active ingredients of ginger in humans](#). *The AAPS journal*, 13(3), 417-426. <https://doi.org/10.1208/s12248-011-9286-5>.

Verma, S. K., Singh, J., Khamesra, R., & Bordia, A. (1993). Effect of ginger on platelet aggregation in man. *The Indian journal of medical research*, 98, 240-242.

Zaeoung, S.; Plubrukarn, A.; Keawpradub, N. (2005) [Cytotoxic and free radical scavenging activities of zingiberaceous rhizomes](#). **Songklanakarinn J. Sci. Technol.** 2005, 27, 799-812.