



## Arnica Montana

Updated: March 3, 2023.

### OVERVIEW

#### Introduction

Arnica montana, also known as wolf's bane, is an herbal medication used topically for pain and inflammation but is of unproven efficacy. It is an extract of the flowering plant Arnica montana, a member of the daisy family. Arnica montana is used topically and as such has not been linked to serum aminotransferase elevations or to clinically apparent liver injury.

#### Background

Arnica montana (also called wolf's bane) is a tall perennial plant with large yellow flowers that belongs to the daisy family Asteraceae and is widespread across Europe. Arnica montana is used in small oral doses in homeopathic medicine and in low doses as treatment for pain, inflammation and fever, most often post-surgery or trauma. It is also used more conventionally as a topical medication for wound healing, swelling, inflammation, bruising and pain. However, there is little evidence for its efficacy either as an oral homeopathic or a topical herbal therapy. The FDA classifies Arnica montana as an unsafe herb and cautions against using it orally or applied to broken skin where absorption can occur. Arnica montana extracts have antiinflammatory effects in vitro and have been purported to be beneficial for pain and swelling when applied topically. The clinical studies have not confirmed its effects on inflammation or pain. Arnica montana is available in multiple over-the-counter topical forms which are claimed to be useful in treating painful skin conditions. Arnica montana extracts applied topically have mild-to-moderate adverse events, which usually overwhelm any beneficial effects they may have on skin conditions. Oral administration of Arnica montana in moderate amounts can cause gastrointestinal upset, nausea, vomiting and abdominal pain. Arnica montana extracts can cause skin rash and urticaria and should not be taken by mouth.

#### Hepatotoxicity

In multiple small, rather short term clinical trials of different preparations of Arnica montana extracts, adverse side effects were described as uncommon and local with no mention of either hepatotoxicity or ALT elevations. Despite widespread use, there have been no published reports of serum enzyme elevations or clinically apparent liver injury attributable to either homeopathic low doses orally or conventional topically applied Arnica montana extracts.

Likelihood score: E (unlikely cause of clinically apparent liver injury).

## Mechanism of Injury

The mechanism by which *Arnica montana* might cause liver injury is unknown.

## Outcome and Management

Hepatotoxicity from topically applied extracts of *Arnica montana* has not been reported.

Drug Class: [Herbal and Dietary Supplements](#)

Other names: Arnica, Wolf's bane, Leopard's bane, Mountain tobacco.

## PRODUCT INFORMATION

### REPRESENTATIVE TRADE NAMES

*Arnica montana* – Generic

### DRUG CLASS

Herbal and Dietary Supplements

### SUMMARY INFORMATION

[Fact Sheet at MedlinePlus, NLM](#)

## CHEMICAL FORMULA AND STRUCTURE

DRUG	CAS REGISTRY NUMBER	MOLECULAR FORMULA	STRUCTURE
<i>Arnica montana</i>	68990-11-4	Herbal	Not Applicable

## ANNOTATED BIBLIOGRAPHY

References updated: 03 March 2023

Abbreviations: HDS, herbal and dietary supplements.

Zimmerman HJ. Unconventional drugs. Miscellaneous drugs and diagnostic chemicals. In, Zimmerman, HJ. Hepatotoxicity: the adverse effects of drugs and other chemicals on the liver. 2nd ed. Philadelphia: Lippincott, 1999: pp. 731-4.

*(Expert review of hepatotoxicity published in 1999; several herbal medications are discussed, but not Arnica montana).*

Liu LU, Schiano TD. Hepatotoxicity of herbal medicines, vitamins and natural hepatotoxins. In, Kaplowitz N, DeLeve LD, eds. Drug-induced liver disease. 2nd ed. New York: Informa Healthcare USA, 2007, pp. 733-54.

*(Review of hepatotoxicity of herbal and dietary supplements [HDS] published in 2007; no mention of Arnica montana).*

*Arnica montana*. In, PDR for Herbal Medicines. 4th ed. Montvale, New Jersey: Thomson Healthcare Inc. 2007: pp. 43-47.

*(Compilation of short monographs on herbal medications and dietary supplements).*

Hörmann HP, Korting HC. Evidence for the efficacy and safety of topical herbal drugs in dermatology: Part I: Anti-inflammatory agents. *Phytomedicine*. 1994;1:161-71. PubMed PMID: 23195891.

*(Review of the efficacy and safety of topically applied herbal products used to treat skin diseases mentions that data on the clinical efficacy of topical Arnica montana “are virtually absent”, while there have been at least 35 publications on toxic or allergic skin reactions due to the herbal product perhaps due to sensitizing sesquiterpene lactones).*

Hart O, Mullee MA, Lewith G, Miller J. Double-blind, placebo-controlled, randomized clinical trial of homeopathic arnica C30 for pain and infection after total abdominal hysterectomy. J R Soc Med. 1997;90:73–8. PubMed PMID: 9068434.

*(Among 73 women undergoing abdominal hysterectomy treated with homeopathic doses of Arnica montana or placebo the day before and then for 5 days after surgery, need for antibiotics and analgesics, duration of hospitalization, and serial daily pain scores were similar in the two groups; no mention of side effects, ALT elevations or hepatotoxicity).*

Ernst E, Pittler MH. Efficacy of homeopathic arnica: a systematic review of placebo-controlled clinical trials. Arch Surg. 1998;133:1187–90. PubMed PMID: 9820349.

*(Among 8 published, controlled trials of homeopathic Arnica montana for trauma, muscular soreness, bruising or postoperative pain and complications, most studies had major methodological flaws, limited or no statistical testing, and minimal and clinically insignificant degrees of benefit; no discussion of side effects).*

Vickers AJ, Fisher P, Smith C, Wyllie SE, Rees R. Homeopathic Arnica 30x is ineffective for muscle soreness after long-distance running: a randomized, double-blind, placebo-controlled trial. Clin J Pain. 1998;14:227–31. PubMed PMID: 9758072.

*(Among 400 long distance runners treated with Arnica montana [1:1000 dilution] or placebo the night before and twice daily for 5 days after a race [usually 6 to 26 miles], muscle soreness was similar in the two groups as measured by visual analog scales and adverse event rates were similar as well).*

Tveiten D, Brusset S. Effect of Arnica D30 in marathon runners. Pooled results from two double-blind placebo controlled studies. Homeopathy. 2003;92:187–9. PubMed PMID: 14587684.

*(Among 82 Oslo city marathon runners treated with Arnica vs placebo twice daily for 5 days starting the evening before the race, muscle soreness symptom scores were less in those receiving Arnica, while serum enzymes rose to a similar extent in both groups from before to 42 to 64 hours afterwards [in placebo group, mean ALT rose from 20 to 33 and 36, AST from 21 to 70 to 54 U/L, CK from 152 to 1180 and 590 U/L]).*

Wolf M, Tamaschke C, Mayer W, Heger M. Forsch Komplementarmed Klass Naturheilkd. 2003;10:242–7. [Efficacy of Arnica in varicose vein surgery: results of a randomized, double-blind, placebo-controlled pilot study]. PubMed PMID: 14605480.

*(Among 60 patients undergoing surgery for varicose veins treated with either Arnica montana or placebo, pain scores and improvement in size of hematomas were not significantly different in the two groups, but both therapies were well tolerated with no serious adverse events; no mention of ALT elevations or hepatotoxicity).*

Stevinson C, Devaraj VS, Fountain-Barber A, Hawkins S, Ernst E. Homeopathic arnica for prevention of pain and bruising: randomized placebo-controlled trial in hand surgery. J R Soc Med. 2003;96:60–5. PubMed PMID: 12562974.

*(Among 64 adults treated with one of two doses of Arnica montana or placebo tablets daily for 7 days before and for 14 days after surgery for carpal tunnel syndrome, there were no differences in measures of pain, swelling or bruising or in use of analgesic medications in the two groups; adverse events rates were also similar in the two groups and were generally mild with no mention of ALT elevations or hepatotoxicity).*

Ernst E. The benefits of Arnica: 16 case reports. Homeopathy. 2003;92:217–9. PubMed PMID: 14587689.

*(Listing of letters describing 16 cases with beneficial effects from Arnica montana therapy for trauma, surgery, pain, bruising and inflammation, all of which the author claims could have occurred by chance or be due to other factors).*

Jacobsson I, Jönsson AK, Gerdén B, Hägg S. Spontaneously reported adverse reactions in association with complementary and alternative medicine substances in Sweden. *Pharmacoepidemiol Drug Saf.* 2009;18:1039–47. PubMed PMID: 19650152.

*(Review of 778 spontaneous reports of adverse reactions to herbals to Swedish Registry found two cases of contact dermatitis, but no instances of liver or other organ injury attributed to Arnica montana).*

Teschke R, Wolff A, Frenzel C, Schulze J, Eickhoff A. Herbal hepatotoxicity: a tabular compilation of reported cases. *Liver Int.* 2012;32:1543–56. PubMed PMID: 22928722.

*(A systematic compilation of all publications on the hepatotoxicity of specific herbals identified 185 publications on 60 different herbs, herbal drugs and supplements, but does not list or mention Arnica montana).*

Bunchorntavakul C, Reddy KR. Review article: herbal and dietary supplement hepatotoxicity. *Aliment Pharmacol Ther.* 2013;37:3–17. PubMed PMID: 23121117.

*(Systematic review of literature on HDS associated liver injury does not mention Arnica montana).*

Navarro VJ, Seeff LB. Liver injury induced by herbal complementary and alternative medicine. *Clin Liver Dis.* 2013;17:715–35. PubMed PMID: 24099027.

*(Review of the epidemiology, regulatory status, diagnosis, pathogenesis and causes of liver injury from herbal products with specific discussion of conjugated linoleic acid, ephedra, germander, green tea, usnic acid, flavocoxid, aloe vera, chaparral, greater celandine, black cohosh, comfrey, kava, skullcap, valerian, noni juice, pennyroyal and traditional herbal remedies).*

Navarro VJ, Barnhart H, Bonkovsky HL, Davern T, Fontana RJ, Grant L, Reddy KR, et al. Liver injury from herbals and dietary supplements in the U.S. Drug-Induced Liver Injury Network. *Hepatology.* 2014;60:1399–408. PubMed PMID: 25043597.

*(Among 839 cases of liver injury from drugs collected in the US between 2004 and 2013, 130 were due to HDS products, including 45 from body building agents [probably anabolic steroids] and 85 from diverse HDS products, but no case was attributed specifically to Arnica montana).*

Iannitti T, Morales-Medina JC, Bellavite P, Rottigni V, Palmieri B. Effectiveness and safety of Arnica montana in post-surgical setting, pain and inflammation. *Am J Ther.* 2016;23:e184–97. PubMed PMID: 25171757.

*(Review of the mechanism of action, clinical efficacy and safety of Arnica montana, both orally in low doses and topically, concludes that topical Arnica is well tolerated and oral formulations are safe, but only when given in low [homeopathic] doses; no mention of liver related adverse events).*

Brown AC. Liver toxicity related to herbs and dietary supplements: Online table of case reports. Part 2 of 5 series. *Food Chem Toxicol.* 2017;107:472–501. PubMed PMID: 27402097.

*(Description of an online compendium of cases of liver toxicity attributed to HDS products, does not list or discuss Arnica montana).*

Medina-Caliz I, Garcia-Cortes M, Gonzalez-Jimenez A, Cabello MR, Robles-Diaz M, Sanabria-Cabrera J, Sanjuan-Jimenez R, et al; Spanish DILI Registry. Herbal and dietary supplement-induced liver injuries in the Spanish DILI Registry. *Clin Gastroenterol Hepatol.* 2018;16:1495–1502. PubMed PMID: 29307848.

*(Among 856 cases of hepatotoxicity enrolled in the Spanish DILI Registry between 1994 and 2016, 32 were attributed to herbal products, the most frequent cause being green tea [n=8] and Herbalife products [n=6], no mention of Arnica montana).*

Ballotin VR, Bigarella LG, Brandão ABM, Balbinot RA, Balbinot SS, Soldera J. Herb-induced liver injury: Systematic review and meta-analysis. *World J Clin Cases*. 2021;9:5490–5513. PubMed PMID: 34307603.

*(Systematic review of the literature on herb induced liver injury identified 446 references describing 936 cases due to 79 different herbal products, the most common being He Shou Wu [91], green tea [90] Herbalife products [64], kava kava [62] and greater celandine [48]; Arnica montana is not discussed).*

Sherban A, Wang JV, Geronemus RG. Growing role for arnica in cosmetic dermatology: Lose the bruise. *J Cosmet Dermatol*. 2021;20:2062–2068. PubMed PMID: 33930256.

*(Review of published clinical trials of oral and topical Arnica montana in reducing pain, redness, edema and ecchymoses after cosmetic dermatology concludes that while some studies have been promising, there does not seem to be definitive or consistent evidence supporting its efficacy and safety, major hurdles being the lack of information on purity, potency and dose of the herbal product).*

Thakur JH, Katre AN. Comparison of the efficacy of homeopathic drug *Arnica* and ibuprofen on postextraction pain in children: a triple-blind randomized controlled trial. *Int J Clin Pediatr Dent*. 2022;15:332–337. PubMed PMID: 35991790.

*(Among 44 children, ages 8 to 12, undergoing two session of tooth extraction were treated with either Arnica montana or ibuprofen [dose and route of administration not provided] 3 times daily for 3 days in a cross over design, pain reduction was greater with ibuprofen, but children preferred the taste of Arnica montana; no mention of adverse events).*

Bessone F, García-Cortés M, Medina-Caliz I, Hernandez N, Parana R, Mendizabal M, Schinoni MI, et al. Herbal and dietary supplements-induced liver injury in Latin America: experience from the LATINDILI Network. *Clin Gastroenterol Hepatol*. 2022;20:e548–e563. PubMed PMID: 33434654.

*(Among 367 cases of hepatotoxicity enrolled in the Latin American DILI Network between 2011 and 2019, 29 [8%] were attributed to herbal products, the most frequent being green tea [n=7], Herbalife products [n=5] and garcinia [n=3], while Arnica montana is not mentioned).*