

Randomized Study of the Efficacy and Safety of Oral Elderberry Extract in the Treatment of Influenza A and B Virus Infections

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Abstract

Elderberry has been used in folk medicine for centuries to treat influenza, colds and sinusitis, and has been reported to have antiviral activity against influenza and herpes simplex. We investigated the efficacy and safety of oral elderberry syrup for treating influenza A and B infections. Sixty patients (aged 18-54 years) suffering from influenza-like symptoms for 48 h or less were enrolled in this randomized, double-blind, placebo-controlled study during the influenza season of 1999-2000 in Norway. Patients received 15 ml of elderberry or placebo syrup four times a day for 5 days, and recorded their symptoms using a visual analogue scale. Symptoms were relieved on average 4 days earlier and use of rescue medication was significantly less in those receiving elderberry extract compared with placebo. Elderberry extract seems to offer an efficient, safe and cost-effective treatment for influenza. These findings need to be confirmed in a larger study.

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- [Inhibition of several strains of influenza virus in vitro and reduction of symptoms by an elderberry extract \(*Sambucus nigra* L.\) during an outbreak of influenza B Panama.](#) Zakay-Rones Z, Varsano N, Zlotnik M, Manor O, Regev L, Schlesinger M, Mumcuoglu M. J Altern Complement Med. 1995 Winter;1(4):361-9. doi: 10.1089/acm.1995.1.361. PMID: 9395631 Clinical Trial.
- [Black elderberry \(*Sambucus nigra*\) supplementation effectively treats upper respiratory symptoms: A meta-analysis of randomized, controlled clinical trials.](#) Hawkins J, Baker C, Cherry L, Dunne E. Complement Ther Med. 2019 Feb;42:361-365. doi: 10.1016/j.ctim.

2018.12.004. Epub 2018 Dec 18. PMID: 30670267

- [A Review of the Antiviral Properties of Black Elder \(Sambucus nigra L.\) Products.](#) Porter RS, Bode RF. *Phytother Res.* 2017 Apr;31(4):533-554. doi: 10.1002/ptr.5782. Epub 2017 Feb 15. PMID: 28198157 Review.
- [A systematic review on the sambuci fructus effect and efficacy profiles.](#) Vlachojannis JE, Cameron M, Chrubasik S. *Phytother Res.* 2010 Jan;24(1):1-8. doi: 10.1002/ptr.2729. PMID: 19548290 Review.
- [Efficacy of oseltamivir treatment started within 5 days of symptom onset to reduce influenza illness duration and virus shedding in an urban setting in Bangladesh: a randomised placebo-controlled trial.](#) Fry AM, Goswami D, Nahar K, Sharmin AT, Rahman M, Gubareva L, Azim T, Bresee J, Luby SP, Brooks WA. *Lancet Infect Dis.* 2014 Feb;14(2):109-18. doi: 10.1016/S1473-3099(13)70267-6. Epub 2013 Nov 22. PMID: 24268590 Clinical Trial.
- [Randomised trial of efficacy and safety of inhaled zanamivir in treatment of influenza A and B virus infections. The MIST \(Management of Influenza in the Southern Hemisphere Trialists\) Study Group.](#) *Lancet.* 1998 Dec 12;352(9144):1877-81. PMID: 9863784 Clinical Trial.
- [Elderberry Supplementation Reduces Cold Duration and Symptoms in Air-Travellers: A Randomized, Double-Blind Placebo-Controlled Clinical Trial.](#) Tiralongo E, Wee SS, Lea RA. *Nutrients.* 2016 Mar 24;8(4):182. doi: 10.3390/nu8040182. PMID: 27023596 Free PMC article. Clinical Trial.
- [Efficacy and safety of the neuraminidase inhibitor zanamivir in the treatment of influenza virus infections. GG167 Influenza Study Group.](#) Hayden FG, Osterhaus AD, Treanor JJ, Fleming DM, Aoki FY, Nicholson KG, Bohnen AM, Hirst HM, Keene O, Wightman K. *N Engl J Med.* 1997 Sep 25;337(13):874-80. doi: 10.1056/NEJM199709253371302. PMID: 9302301 Clinical Trial.
- [Efficacy and safety of inhaled zanamivir in the prevention of influenza in community-dwelling, high-risk adult and adolescent subjects: a 28-day, multicenter, randomized, double-blind, placebo-controlled trial.](#) LaForce C, Man CY, Henderson FW, McElhaney JE, Hampel FC Jr, Bettis R, Kudule L, Harris J, Yates P, Tisdale M, Webster A. *Clin Ther.* 2007 Aug;29(8):1579-90; discussion 1577-8. doi: 10.1016/j.clinthera.2007.08.023. PMID: 17919541 Clinical Trial.
- [The effect of Sambucol, a black elderberry-based, natural product, on the production of human cytokines: I. Inflammatory cytokines.](#) Barak V, Halperin T, Kalickman I. *Eur Cytokine Netw.* 2001 Apr-Jun;12(2):290-6. PMID: 11399518
- [Efficacy and tolerability of the oral neuraminidase inhibitor peramivir in experimental human influenza: randomized, controlled trials for prophylaxis and treatment.](#) Barroso L,

Treanor J, Gubareva L, Hayden FG. Antivir Ther. 2005;10(8):901-10. PMID: 16430195 Clinical Trial.

- [Efficacy and safety of zanamivir in patients with influenza--impact of age, severity of infections and specific risk factors.](#) Höffken G, Gillissen A. Med Microbiol Immunol. 2002 Dec;191(3-4):169-73. doi: 10.1007/s00430-002-0140-3. Epub 2002 Sep 11. PMID: 12458354 Review.
- [Clinical efficacy and safety of the orally inhaled neuraminidase inhibitor zanamivir in the treatment of influenza: a randomized, double-blind, placebo-controlled European study.](#) Mäkelä MJ, Pauksens K, Rostila T, Fleming DM, Man CY, Keene ON, Webster A. J Infect. 2000 Jan;40(1):42-8. doi: 10.1053/jinf.1999.0602. PMID: 10762110 Clinical Trial.
- [Monograph. Sambucus nigra \(elderberry\).](#) Altern Med Rev. 2005 Mar;10(1):51-4. PMID: 15771563 No abstract available.

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- [Antiviral effect of phytochemicals from medicinal plants: Applications and drug delivery strategies.](#) Ben-Shabat S, Yarmolinsky L, Porat D, Dahan A. Drug Deliv Transl Res. 2020 Apr;10(2):354-367. doi: 10.1007/s13346-019-00691-6. PMID: 31788762 Free PMC article. Review.
- [The Signaling Pathways, and Therapeutic Targets of Antiviral Agents: Focusing on the Antiviral Approaches and Clinical Perspectives of Anthocyanins in the Management of Viral Diseases.](#) Mohammadi Pour P, Fakhri S, Asgary S, Farzaei MH, Echeverría J. Front Pharmacol. 2019 Nov 8;10:1207. doi: 10.3389/fphar.2019.01207. eCollection 2019. PMID: 31787892 Free PMC article. Review.
- [A New Black Elderberry Dye Enriched in Antioxidants Designed for Healthy Sweets Production.](#) Małgorzata D, Aleksandra P, Monika T, Ireneusz K. Antioxidants (Basel). 2019 Jul 31;8(8):257. doi: 10.3390/antiox8080257. PMID: 31370209 Free PMC article.
- [Confirmation Bias as a Factor in Pharmacy Student Assessment of Research Study Quality.](#) Miller DR, Jangula SJ. Am J Pharm Educ. 2019 Jun;83(5):6754. doi: 10.5688/ajpe6754. PMID: 31333252 Free PMC article.

- [Antiviral Effects of *Houttuynia cordata* Polysaccharide Extract on Murine Norovirus-1 \(MNV-1\)-A Human Norovirus Surrogate.](#) Cheng D, Sun L, Zou S, Chen J, Mao H, Zhang Y, Liao N, Zhang R. *Molecules*. 2019 May 13;24(9):1835. doi: 10.3390/molecules24091835. PMID: 31086065 Free PMC article.
- [Nutritional and Physical Activity Interventions to Improve Immunity.](#) Davison G, Kehaya C, Wyn Jones A. *Am J Lifestyle Med*. 2014 Nov 25;10(3):152-169. doi: 10.1177/1559827614557773. eCollection 2016 May-Jun. PMID: 30202268 Free PMC article.
- [Interfering With Lipid Raft Association: A Mechanism to Control Influenza Virus Infection By *Sambucus Nigra*.](#) Shamsavandi S, Ebrahimi MM, Hasaninejad Farahani A. *Iran J Pharm Res*. 2017 Summer;16(3):1147-1154. PMID: 29201101 Free PMC article.
- [Discriminant Analyses of the Polyphenol Content of American Elderberry Juice from Multiple Environments Provide Genotype Fingerprint.](#) Johnson MC, Dela Libera Tres M, Thomas AL, Rottinghaus GE, Greenleaf CM. *J Agric Food Chem*. 2017 May 24;65(20):4044-4050. doi: 10.1021/acs.jafc.6b05675. Epub 2017 May 11. PMID: 28475841 Free PMC article.
- [Plants Producing Ribosome-Inactivating Proteins in Traditional Medicine.](#) Polito L, Bortolotti M, Maiello S, Battelli MG, Bolognesi A. *Molecules*. 2016 Nov 18;21(11):1560. doi: 10.3390/molecules21111560. PMID: 27869738 Free PMC article. Review.
- [Medicinal plants--prophylactic and therapeutic options for gastrointestinal and respiratory diseases in calves and piglets? A systematic review.](#) Ayrle H, Mevissen M, Kaske M, Nathues H, Gruetzner N, Melzig M, Walkenhorst M. *BMC Vet Res*. 2016 Jun 6;12:89. doi: 10.1186/s12917-016-0714-8. PMID: 27268043 Free PMC article. Review.
- [Prevention and Treatment of Influenza, Influenza-Like Illness, and Common Cold by Herbal, Complementary, and Natural Therapies.](#) Mousa HA. *J Evid Based Complementary Altern Med*. 2017 Jan;22(1):166-174. doi: 10.1177/2156587216641831. Epub 2016 Apr 6. PMID: 27055821 Free PMC article. Review.
- [Comparison of \$\alpha\$ -glucosyl hesperidin of citrus fruits and epigallocatechin gallate of green tea on the Loss of Rotavirus Infectivity in Cell Culture.](#) Lipson SM, Ozen FS, Louis S, Karthikeyan L. *Front Microbiol*. 2015 Apr 29;6:359. doi: 10.3389/fmicb.2015.00359. eCollection 2015. PMID: 25972850 Free PMC article.
- [Echinacea and elderberry-should they be used against upper respiratory tract infections during pregnancy?](#) Holst L, Havnen GC, Nordeng H. *Front Pharmacol*. 2014 Mar 4;5:31. doi: 10.3389/fphar.2014.00031. eCollection 2014. PMID: 24624087 Free PMC article. Review.
- [Phytotherapeutic and naturopathic adjuvant therapies in otorhinolaryngology.](#) Ciuman RR. *Eur Arch Otorhinolaryngol*. 2012 Feb;269(2):389-97. doi: 10.1007/

s00405-011-1755-z. Epub 2011 Sep 16. PMID: 21922427 Free PMC article. Review.

- [Inhibitory activity of a standardized elderberry liquid extract against clinically-relevant human respiratory bacterial pathogens and influenza A and B viruses.](#) Krawitz C, Mraheil MA, Stein M, Imirzalioglu C, Domann E, Pleschka S, Hain T. BMC Complement Altern Med. 2011 Feb 25;11:16. doi: 10.1186/1472-6882-11-16. PMID: 21352539 Free PMC article.
- [Antimicrobial activity and synergism of some substituted flavonoids.](#) Alvarez MA, Debattista NB, Pappano NB. Folia Microbiol (Praha). 2008;53(1):23-8. doi: 10.1007/s12223-008-0003-4. Epub 2008 May 15. PMID: 18481214
- [Antiviral potentials of medicinal plants.](#) Mukhtar M, Arshad M, Ahmad M, Pomerantz RJ, Wigdahl B, Parveen Z. Virus Res. 2008 Feb;131(2):111-20. doi: 10.1016/j.virusres.2007.09.008. Epub 2007 Nov 5. PMID: 17981353 Free PMC article. Review.
- [Influenza and the vocal performer: update on prevention and treatment.](#) Bové MJ, Kansal S, Rosen CA. J Voice. 2008 May;22(3):326-32. doi: 10.1016/j.jvoice.2006.09.012. Epub 2006 Nov 28. PMID: 17134876 Free PMC article. Review.