

References

Milk Thistle

515

Foster S, Tyler VE. *Tyler's Honest Herbal*, 4th ed., Binghamton, NY: Haworth Herbal Press, 1999.

2613

Feher J, Deak G, Muzes G, et al. [Liver-protective action of silymarin therapy in chronic alcoholic liver diseases]. *Orv Hetil* 1989;130:2723-7. [View abstract](#).

2614

Szilard S, Szentgyorgyi D, Demeter I. Protective effect of Legalon in workers exposed to organic solvents. *Acta Med Hung* 1988;45:249-56. [View abstract](#).

2615

Hruby K, Csomos G, Fuhrmann M, Thaler H. Chemotherapy of *Amanita phalloides* poisoning with intravenous silibinin. *Hum Toxicol* 1983;2:183-95. [View abstract](#).

2616

Ferenci P, Dragosics B, Dittrich H, et al. Randomized controlled trial of silymarin treatment in patients with cirrhosis of the liver. *J Hepatol* 1989;9:105-13. [View abstract](#).

2617

Velussi M, Cernigoi AM, De Monte A, et al. Long-term (12 months) treatment with an anti-oxidant drug (silymarin) is effective on hyperinsulinemia, exogenous insulin need and malondialdehyde levels in cirrhotic diabetic patients. *J Hepatol* 1997;26:871-9. [View abstract](#).

2618

Salmi HA, Sarna S. Effect of silymarin on chemical, functional, and morphological alterations of the liver. A double-blind, controlled study. *Scand J Gastroenterol* 1982;17:517-21. [View abstract](#).

3525

Adverse Drug Reactions Advisory Committee. An adverse reaction to the herbal medication milk thistle (*Silybum marianum*). *Med J Aust* 1999;170:218-9. [View abstract](#).

6180

Eagon PK, Elm MS, Hunter DS, et al. Medicinal herbs: modulation of estrogen action. Era of Hope Mtg, Dept Defense; Breast Cancer Res Prog, Atlanta, GA 2000;Jun 8-11.

6450

Budzinski JW, Foster BC, Vandenhoek S, Arnason JT. An in vitro evaluation of human cytochrome P450 3A4 inhibition by selected commercial herbal extracts and tinctures. *Phytomedicine* 2000;7:273-82. [View abstract](#).

6879

Anon. Milk thistle: Effects on liver disease and cirrhosis and clinical adverse effects. Summary, Evidence Report/Technology Assessment: Number 21, September 2000. Agency for Healthcare Research and Quality, Rockville, MD. Available at: <http://www.ahrq.gov/clinic/epcsums/milktsum.htm>

7049

Holtmann G, Madisch A, Juergen H, et al. A double-blind, randomized, placebo-controlled trial on the effects of an herbal preparation in patients with functional dyspepsia [Abstract]. Ann Mtg Digestive Disease Week 1999 May.

7089

Beckmann-Knopp S, Rietbrock S, Weyhenmeyer R, et al. Inhibitory effects of silibinin on cytochrome P-450 enzymes in human liver microsomes. *Pharmacol Toxicol* 2000;86:250-6. [View abstract](#).

7161

Chevallier A. *Encyclopedia of Herbal Medicine*. 2nd ed. New York, NY: DK Publ, Inc., 2000.

7318

Venkataramanan R, Ramachandran V, Komoroski BJ, et al. Milk thistle, a herbal supplement, decreases the activity of CYP3A4 and uridine diphosphoglucuronosyl transferase in human hepatocyte cultures. *Drug Metab Dispos* 2000;28:1270-3. [View abstract](#).

7319

Zhu W, Zhang JS, Young CY. Silymarin inhibits function of the androgen receptor by reducing nuclear localization of the receptor in the human prostate cancer cell line LNCaP. Carcinogenesis 2001;22:1399-403. [View abstract](#).

7320

Sonnenbichler J, Scalera F, Sonnenbichler I, Weyhenmeyer R. Stimulatory effects of silibinin and silicristin from the milk thistle *Silybum marianum* on kidney cells. J Pharmacol Exp Ther 1999;290:1375-83. [View abstract](#).

7321

Bunout D, Hirsch S, Petermann M. [Controlled study of the effect of silymarin on alcoholic liver disease.] Rev Med Chil 1992;120:1370-5. [View abstract](#).

7322

Trinchet JC, Coste T, Levy VG. [Treatment of alcoholic hepatitis with silymarin. A double-blind comparative study in 116 patients]. Gastroenterol Clin Biol 1989;13:120-4. [View abstract](#).

7324

Kim DH, Jin YH, Park JB, Kobashi K. Silymarin and its components are inhibitors of beta-glucuronidase. Biol Pharm Bull 1994;17:443-5. [View abstract](#).

7355

Pares A, Planas R, Torres M, et al. Effects of silymarin in alcoholic patients with cirrhosis of the liver: results of a controlled, double-blind, randomized and multicenter trial. J Hepatol 1998;28:615-21. [View abstract](#).

7356

Buzzelli G, Moscarella S, Giusti A, et al. A pilot study on the liver protective effect of silybin-phosphatidylcholine complex (IdB1016) in chronic active hepatitis. Int J Clin Pharmacol Ther Toxicol 1993;31:456-60. [View abstract](#).

7859

Manna SK, Mukhopadhyay A, Van NT, Aggarwal BB. Silymarin suppresses TNF-induced activation of NF-kappa B, c-Jun N-terminal kinase, and apoptosis. J Immunol 1999;163:6800-9. [View abstract](#).

8234

Piscitelli SC, Formentini E, Burstein AH, et al. Effect of milk thistle on the pharmacokinetics of indinavir in healthy volunteers. Pharmacotherapy 2002;22:551-6. [View abstract](#).

8956

Boerth J, Strong KM. The clinical utility of milk thistle (*Silybum marianum*) in cirrhosis of the liver. J Herb Pharmacother 2002;2:11-7. [View abstract](#).

8957

Flora K, Hahn M, Rosen H, Benner K. Milk thistle (*Silybum marianum*) for the therapy of liver disease. Am J Gastroenterol 1998;93:139-43. [View abstract](#).

10427

DiCenzo R, Shelton M, Jordan K, et al. Coadministration of milk thistle and indinavir in healthy subjects. Pharmacotherapy 2003;23:866-70.. [View abstract](#).

11481

Maitrejean M, Comte G, Barron D, et al. The flavanolignan silybin and its hemisynthetic derivatives, a novel series of potential modulators of P-glycoprotein. Bioorg Med Chem Lett 2000;10:157-60. [View abstract](#).

12724

Madisch A, Holtmann G, Mayr G, et al. Treatment of functional dyspepsia with a herbal preparation. A double-blind, randomized, placebo-controlled, multicenter trial. Digestion 2004;69:45-52. [View abstract](#).

13089

Melzer J, Rosch W, Reichling J, et al. Meta-analysis: phytotherapy of functional dyspepsia with the herbal drug preparation STW 5 (Iberogast). Aliment Pharmacol Ther 2004;20:1279-87. [View abstract](#).

13170

Tanamly MD, Tadros F, Labeeb S, et al. Randomised double-blinded trial evaluating silymarin for chronic hepatitis C in an Egyptian village: study description and 12-month results. Dig Liver Dis 2004;36:752-9. [View abstract](#).

13712

- Gurley BJ, Gardner SF, Hubbard MA, et al. In vivo assessment of botanical supplementation on human cytochrome P450 phenotypes: Citrus aurantium, Echinacea purpurea, milk thistle, and saw palmetto. *Clin Pharmacol Ther* 2004;76:428-40. . [View abstract](#). **14420**
- Gurley B, Hubbard MA, Williams DK, et al. Assessing the clinical significance of botanical supplementation on human cytochrome P450 3A activity: comparison of a milk thistle and black cohosh product to rifampin and clarithromycin. *J Clin Pharmacol* 2006;46:201-13. [View abstract](#). **15102**
- Huseini HF, Larijani B, Heshmat R, et al. The efficacy of Silybum marianum (L.) Gaertn. (silymarin) in the treatment of type II diabetes: a randomized, double-blind, placebo-controlled, clinical trial. *Phytother Res* 2006;20:1036-9. [View abstract](#). **16408**
- Deng JW, Shon JH, Shin HJ, et al. Effect of silymarin supplement on the pharmacokinetics of rosuvastatin. *Pharm Res* 2008;25:1807-14. [View abstract](#). **17101**
- Kim CS, Choi SJ, Park CY, et al. Effects of silybinin on the pharmacokinetics of tamoxifen and its active metabolite, 4-hydroxytamoxifen in rats. *Anticancer Res* 2010;30:79-85. [View abstract](#). **17228**
- Saller R, Brignoli R, Melzer J, Meier R. An updated systematic review with meta-analysis for the clinical evidence of silymarin. *Forsch Komplementarmed* 2008;15:9-20. [View abstract](#). **17713**
- Freedman ND, Curto TM, Morishima C, et al. Silymarin use and liver disease progression in the hepatitis C Antiviral Long-Term Treatment against Cirrhosis Trial. *Aliment Pharmacol Ther* 2011;33:127-37. [View abstract](#). **17973**
- Sridar C, Goosen TC, Kent UM, et al. Silybin inactivates cytochromes P450 3A4 and 2C9 and inhibits major hepatic glucuronosyltransferases. *Drug Metab Dispos* 2004;32:587-94. [View abstract](#). **17974**
- van Erp NP, Baker SD, Zhao M, et al. Effect of milk thistle (*Silybum marianum*) on the pharmacokinetics of irinotecan. *Clin Cancer Res* 2005;11:7800-6. [View abstract](#). **17975**
- Budzinski JW, Trudeau VL, Drouin CE, et al. Modulation of human cytochrome P450 3A4 (CYP3A4) and P-glycoprotein (P-gp) in Caco-2 cell monolayers by selected commercial-source milk thistle and goldenseal products. *Can J Physiol Pharmacol* 2007;85:966-78. [View abstract](#). **17976**
- Doehmer J, Weiss G, McGregor GP, Appel K. Assessment of a dry extract from milk thistle (*Silybum marianum*) for interference with human liver cytochrome-P450 activities. *Toxicol In Vitro* 2011;25:21-7. [View abstract](#). **18105**
- Bakhshaei M, Jabbari F, Hoseini S, et al. Effect of silymarin in the treatment of allergic rhinitis. *Otolaryngology - Head and Neck Surgery* 2011;145:904-9. [View abstract](#). **19532**
- Madisch A, Melderis H, Mayr G, et al. [A plant extract and its modified preparation in functional dyspepsia. Results of a double-blind placebo controlled comparative study]. *Z Gastroenterol* 2001;39(7):511-7. [View abstract](#). **19552**
- Rotem C, Kaplan B. Phyto-Female Complex for the relief of hot flushes, night sweats and quality of sleep: randomized, controlled, double-blind pilot study. *Gynecol Endocrinol* 2007;23:117-22. [View abstract](#). **19876**
- Jiao Z, Shi XJ, Li ZD, et al. Population pharmacokinetics of sirolimus in de novo Chinese adult renal transplant patients. *Br.J.Clin.Pharmacol.* 2009;68(1):47-60. [View abstract](#). **48628**
- Unger, M. [Pharmacokinetic drug interactions by herbal drugs: Critical evaluation and clinical relevance]. *Wien.Med.Wochenschr.* 2010;160(21-22):571-577. [View abstract](#). **49769**

Hasani-Ranjbar, S., Nayebi, N., Moradi, L., Mehri, A., Larijani, B., and Abdollahi, M. The efficacy and safety of herbal medicines used in the treatment of hyperlipidemia; a systematic review. Curr.Pharm.Des 2010;16(26):2935-2947. [View abstract](#).

49773

Suksomboon N, Poolsup N, Boonkaew S, Suthisisang CC. Meta-analysis of the effect of herbal supplement on glycemic control in type 2 diabetes. J Ethnopharmacol 2011;137(3):1328-1333. [View abstract](#).

51423

Hasani-Ranjbar, S., Larijani, B., and Abdollahi, M. A systematic review of the potential herbal sources of future drugs effective in oxidant-related diseases. Inflamm.Allergy Drug Targets. 2009;8(1):2-10. [View abstract](#).

60361

Schroder, F. H., Roobol, M. J., Boeve, E. R., de Mutsert, R., Zuidgeest-van Leeuwen, S. D., Kersten, I., Wildhagen, M. F., and van Helvoort, A. Randomized, double-blind, placebo-controlled crossover study in men with prostate cancer and rising PSA: effectiveness of a dietary supplement. Eur Urol 2005;48(6):922-930. [View abstract](#).

63140

Allain, H., Schuck, S., Lebreton, S., Strenge-Hesse, A., Braun, W., Gandon, J. M., and Brissot, P. Aminotransferase levels and silymarin in de novo tacrine-treated patients with Alzheimer's disease. Dement.Geriatr.Cogn Disord. 1999;10(3):181-185. [View abstract](#).

63145

Reutter, F. W. and Haase, W. [Clinical experience with silymarin in the treatment of chronic liver disease(author's transl)]. Schweiz Rundsch.Med Prax. 9-9-1975;64(36):1145-1151. [View abstract](#).

63146

Angulo, P., Patel, T., Jorgensen, R. A., Therneau, T. M., and Lindor, K. D. Silymarin in the treatment of patients with primary biliary cirrhosis with a suboptimal response to ursodeoxycholic acid. Hepatology 2000;32(5):897-900. [View abstract](#).

63148

Bhatia, N. and Agarwal, R. Detrimental effect of cancer preventive phytochemicals silymarin, genistein and epigallocatechin 3-gallate on epigenetic events in human prostate carcinoma DU145 cells. Prostate 2-1-2001;46(2):98-107. [View abstract](#).

63150

Zou, C. G., Agar, N. S., and Jones, G. L. Oxidative insult to human red blood cells induced by free radical initiator AAPH and its inhibition by a commercial antioxidant mixture. Life Sci 5-25-2001;69(1):75-86. [View abstract](#).

63153

Batakov, E. A. [Effect of Silybum marianum oil and legalon on lipid peroxidation and liver antioxidant systems in rats intoxicated with carbon tetrachloride]. Eksp.Klin Farmakol. 2001;64(4):53-55. [View abstract](#).

63158

Lucena, M. I., Andrade, R. J., de la Cruz, J. P., Rodriguez-Mendizabal, M., Blanco, E., and Sanchez, de la Cuesta. Effects of silymarin MZ-80 on oxidative stress in patients with alcoholic cirrhosis. Results of a randomized, double-blind, placebo- controlled clinical study. Int J Clin Pharmacol Ther 2002;40(1):2-8. [View abstract](#).

63159

Kittur, S., Wilasrusmee, S., Pedersen, W. A., Mattson, M. P., Straube-West, K., Wilasrusmee, C., Lubelt, B., and Kittur, D. S. Neurotrophic and neuroprotective effects of milk thistle (*Silybum marianum*) on neurons in culture. J Mol.Neurosci. 2002;18(3):265-269. [View abstract](#).

63160

Bean, P. The use of alternative medicine in the treatment of hepatitis C. Am.Clin.Lab 2002;21(4):19-21. [View abstract](#).

63161

Jacobs, B. P., Dennehy, C., Ramirez, G., Sapp, J., and Lawrence, V. A. Milk thistle for the treatment of liver disease: a systematic review and meta-analysis. Am J Med 10-15-2002;113(6):506-515. [View abstract](#).

63163

- Desplaces, A., Choppin, J., Vogel, G., and Trost, W. The effects of silymarin on experimental phalloidine poisoning. *Arzneimittelforschung*. 1975;25(1):89-96. [View abstract](#). **63184**
- Weyhenmeyer, R., Mascher, H., and Birkmayer, J. Study on dose-linearity of the pharmacokinetics of silibinin diastereomers using a new stereospecific assay. *Int.J Clin Pharmacol Ther* 1992;30(4):134-138. [View abstract](#).
- Carini, R., Comoglio, A., Albano, E., and Poli, G. Lipid peroxidation and irreversible damage in the rat hepatocyte model. Protection by the silybin-phospholipid complex IdB 1016. *Biochem Pharmacol* 5-28-1992;43(10):2111-2115. [View abstract](#).
- Hussain, S. A. Silymarin as an adjunct to glibenclamide therapy improves long-term and postprandial glycemic control and body mass index in type 2 diabetes. *J.Med.Food* 2007;10(3):543-547. [View abstract](#).
- Rambaldi, A., Jacobs, B. P., and Gluud, C. Milk thistle for alcoholic and/or hepatitis B or C virus liver diseases. *Cochrane.Database.Syst.Rev* 2007;(4):CD003620. [View abstract](#).
- Detaille, D., Sanchez, C., Sanz, N., Lopez-Novoa, J. M., Leverve, X., and El Mir, M. Y. Interrelation between the inhibition of glycolytic flux by silibinin and the lowering of mitochondrial ROS production in perfused rat hepatocytes. *Life Sci* 5-23-2008;82(21-22):1070-1076. [View abstract](#).
- Wallace, S., Vaughn, K., Stewart, B. W., Viswanathan, T., Clausen, E., Nagarajan, S., and Carrier, D. J. Milk thistle extracts inhibit the oxidation of low-density lipoprotein (LDL) and subsequent scavenger receptor-dependent monocyte adhesion. *J Agric Food Chem* 6-11-2008;56(11):3966-3972. [View abstract](#).
- Pade, D. and Stavchansky, S. Selection of bioavailability markers for herbal extracts based on in silico descriptors and their correlation to in vitro permeability. *Mol.Pharm.* 2008;5(4):665-671. [View abstract](#).
- Schrieber, S. J., Wen, Z., Vourvahis, M., Smith, P. C., Fried, M. W., Kashuba, A. D., and Hawke, R. L. The pharmacokinetics of silymarin is altered in patients with hepatitis C virus and nonalcoholic Fatty liver disease and correlates with plasma caspase-3/7 activity. *Drug Metab Dispos* 2008;36(9):1909-1916. [View abstract](#).
- Asghar, Z. and Masood, Z. Evaluation of antioxidant properties of silymarin and its potential to inhibit peroxy radicals in vitro. *Pak.J Pharm Sci* 2008;21(3):249-254. [View abstract](#).
- Mereish, K. A., Bunner, D. L., Ragland, D. R., and Creasia, D. A. Protection against microcystin-LR-induced hepatotoxicity by Silymarin: biochemistry, histopathology, and lethality. *Pharm.Res* 1991;8(2):273-277. [View abstract](#).
- Par, A., Roth, E., Miseta, A., Hegedus, G., Par, G., Hunyady, B., and Vincze, A. [Effects of supplementation with the antioxidant flavonoid, silymarin, in chronic hepatitis C patients treated with peg-interferon + ribavirin. A placebo-controlled double blind study]. *Orv.Hetil.* 1-11-2009;150(2):73-79. [View abstract](#).
- EI-Kamary, S. S., Shardell, M. D., Abdel-Hamid, M., Ismail, S., EI-Ateek, M., Metwally, M., Mikhail, N., Hashem, M., Mousa, A., Aboul-Fotouh, A., EI-Kassas, M., Esmat, G., and Strickland, G. T. A randomized controlled trial to assess the safety and efficacy of silymarin on symptoms, signs and biomarkers of acute hepatitis. *Phytomedicine*. 2009;16(5):391-400. [View abstract](#).
- Nassuato, G., Iemmolo, R. M., Strazzabosco, M., Lirussi, F., Deana, R., Francesconi, M. A., Muraca, M., Passera, D., Fragasso, A., Orlando, R., and . Effect of Silibinin on biliary lipid composition. Experimental and clinical study. *J Hepatol.* 1991;12(3):290-295. [View abstract](#).

63212

Gharagozloo, M., Moayedi, B., Zakerinia, M., Hamidi, M., Karimi, M., Maracy, M., and Amirghofran, Z. Combined therapy of silymarin and desferrioxamine in patients with beta-thalassemia major: a randomized double-blind clinical trial. *Fundam.Clin.Pharmacol.* 2009;23(3):359-365. [View abstract](#).

63217

Hawke, R. L., Schrieber, S. J., Soule, T. A., Wen, Z., Smith, P. C., Reddy, K. R., Wahed, A. S., Belle, S. H., Afdhal, N. H., Navarro, V. J., Berman, J., Liu, Q. Y., Doo, E., and Fried, M. W. Silymarin ascending multiple oral dosing phase I study in noncirrhotic patients with chronic hepatitis C. *J.Clin.Pharmacol.* 2010;50(4):434-449. [View abstract](#).

63218

Ladas, E. J., Kroll, D. J., Oberlies, N. H., Cheng, B., Ndao, D. H., Rheingold, S. R., and Kelly, K. M. A randomized, controlled, double-blind, pilot study of milk thistle for the treatment of hepatotoxicity in childhood acute lymphoblastic leukemia (ALL). *Cancer* 1-15-2010;116(2):506-513. [View abstract](#).

63219

Sayyah, M., Boostani, H., Pakseresht, S., and Malayeri, A. Comparison of Silybum marianum (L.) Gaertn. with fluoxetine in the treatment of Obsessive-Compulsive Disorder. *Prog.Neuropsychopharmacol.Biol.Psychiatry* 3-17-2010;34(2):362-365. [View abstract](#).

63221

Flaig, T. W., Glode, M., Gustafson, D., van, Bokhoven A., Tao, Y., Wilson, S., Su, L. J., Li, Y., Harrison, G., Agarwal, R., Crawford, E. D., Lucia, M. S., and Pollak, M. A study of high-dose oral silybin-phytosome followed by prostatectomy in patients with localized prostate cancer. *Prostate* 6-1-2010;70(8):848-855. [View abstract](#).

63222

Magdalan, J., Piotrowska, A., Gomulkiewicz, A., Sozanski, T., Szelag, A., and Dziegiej, P. Influence of commonly used clinical antidotes on antioxidant systems in human hepatocyte culture intoxicated with alpha-amanitin. *Hum.Exp.Toxicol.* 2011;30(1):38-43. [View abstract](#).

63223

de Font-Reaulx, Rojas E. and Dorazco-Barragan, G. [Clinical stabilisation in neurodegenerative diseases: clinical study in phase II]. *Rev.Neurol.* 5-1-2010;50(9):520-528. [View abstract](#).

63224

Li, J., Lin, W. F., Pan, Y. Y., and Zhu, X. Y. [Protective effect of silibinin on liver injury induced by antituberculosis drugs]. *Zhonghua Gan Zang.Bing.Za Zhi.* 2010;18(5):385-386. [View abstract](#).

63225

Payer, B. A., Reiberger, T., Rutter, K., Beinhardt, S., Staetttermayer, A. F., Peck-Radosavljevic, M., and Ferenci, P. Successful HCV eradication and inhibition of HIV replication by intravenous silibinin in an HIV-HCV coinfecte patient. *J.Clin.Virology* 2010;49(2):131-133. [View abstract](#).

63227

Moosavifar, N., Mohammadpour, A. H., Jallali, M., Karimiz, G., and Saberi, H. Evaluation of effect of silymarin on granulosa cell apoptosis and follicular development in patients undergoing in vitro fertilization. *East Mediterr.Health J.* 2010;16(6):642-645. [View abstract](#).

63228

Barzaghi, N., Crema, F., Gatti, G., Pifferi, G., and Perucca, E. Pharmacokinetic studies on IdB 1016, a silybin- phosphatidylcholine complex, in healthy human subjects. *Eur J Drug Metab Pharmacokinet.* 1990;15(4):333-338. [View abstract](#).

63229

Vidlar, A., Vostalova, J., Ulrichova, J., Student, V., Krajicek, M., Vrbkova, J., and Simanek, V. The safety and efficacy of a silymarin and selenium combination in men after radical prostatectomy - a six month placebo-controlled double-blind clinical trial. *Biomed.Pap.Med.Fac.Univ Palacky.Olomouc.Czech.Repub.* 2010;154(3):239-244. [View abstract](#).

63232

Tiwari, P., Kumar, A., Balakrishnan, S., Kushwaha, H. S., and Mishra, K. P. Silibinin-induced apoptosis in MCF7 and T47D human breast carcinoma cells involves caspase-8 activation and mitochondrial pathway. *Cancer Invest* 2011;29(1):12-20. [View abstract](#).

63233

Wagoner, J., Morishima, C., Graf, T. N., Oberlies, N. H., Teissier, E., Pecheur, E. I., Tavis, J. E., and Polyak, S. J. Differential in vitro effects of intravenous versus oral formulations of silibinin on the HCV life cycle and inflammation. *PLoS.One.* 2011;6(1):e16464. [View abstract](#).

63236

Eurich, D., Bahra, M., Berg, T., Boas-Knoop, S., Biermer, M., Neuhaus, R., Neuhaus, P., and Neumann, U. Treatment of hepatitis C-virus-reinfection after liver transplant with silibinin in nonresponders to pegylated interferon-based therapy. *Exp.Clin.Transplant.* 2011;9(1):1-6. [View abstract](#).

63238

Ramirez-Santos, A., Perez-Bustillo, A., Gonzalez-Sixto, B., Suarez-Amor, O., and Rodriguez-Prieto, M. A. [Acute generalized exanthematous pustulosis due to milk thistle (*Silybum marianum*) tea]. *Actas Dermosifiliogr.* 2011;102(9):744-745. [View abstract](#).

63239

Becker-Schiebe, M., Mengs, U., Schaefer, M., Bulitta, M., and Hoffmann, W. Topical use of a silymarin-based preparation to prevent radiodermatitis : results of a prospective study in breast cancer patients. *Strahlenther.Onkol.* 2011;187(8):485-491. [View abstract](#).

63240

Schrieber, S. J., Hawke, R. L., Wen, Z., Smith, P. C., Reddy, K. R., Wahed, A. S., Belle, S. H., Afdhal, N. H., Navarro, V. J., Meyers, C. M., Doo, E., and Fried, M. W. Differences in the disposition of silymarin between patients with nonalcoholic fatty liver disease and chronic hepatitis C. *Drug Metab Dispos.* 2011;39(12):2182-2190. [View abstract](#).

63243

Zhang, J., Luan, Q., Liu, Y., Lee, D. Y., and Wang, Z. A comparison of the diastereoisomers, silybin A and silybin B, on the induction of apoptosis in K562 cells. *Nat.Prod.Commun.* 2011;6(11):1653-1656. [View abstract](#).

63244

Loguercio, C., Andreone, P., Brisc, C., Brisc, M. C., Bugianesi, E., Chiaramonte, M., Cursaro, C., Danila, M., de, Sio, I., Floreani, A., Freni, M. A., Grieco, A., Groppo, M., Lazzari, R., Lobello, S., Lorefice, E., Margotti, M., Miele, L., Milani, S., Okolicsanyi, L., Palasciano, G., Portincasa, P., Saltarelli, P., Smedile, A., Somalvico, F., Spadaro, A., Sporea, I., Sorrentino, P., Vecchione, R., Tuccillo, C., Del Vecchio, Blanco C., and Federico, A. Silybin combined with phosphatidylcholine and vitamin E in patients with nonalcoholic fatty liver disease: a randomized controlled trial. *Free Radic.Biol.Med.* 5-1-2012;52(9):1658-1665. [View abstract](#).

63245

Iakimchuk, G. N. and Gendrikson, L. N. [Study of clinical efficiency of essential phospholipids and silymarin combination in nonalcoholic and alcoholic steatohepatitis]. *Eksp.Klin.Gastroenterol.* 2011;(7):64-69. [View abstract](#).

63247

Yakoot, M. and Salem, A. *Spirulina platensis* versus silymarin in the treatment of chronic hepatitis C virus infection. A pilot randomized, comparative clinical trial. *BMC.Gastroenterol.* 2012;12:32. [View abstract](#).

63249

Brinda, B. J., Zhu, H. J., and Markowitz, J. S. A sensitive LC-MS/MS assay for the simultaneous analysis of the major active components of silymarin in human plasma. *J.Chromatogr.B Analyt.Technol.Biomed.Life Sci.* 8-1-2012;902:1-9. [View abstract](#).

63250

Fallahzadeh, M. K., Dormanesh, B., Sagheb, M. M., Roozbeh, J., Vessal, G., Pakfetrat, M., Daneshbod, Y., Kamali-Sarvestani, E., and Lankarani, K. B. Effect of addition of silymarin to renin-angiotensin system inhibitors on proteinuria in type 2 diabetic patients with overt nephropathy: a randomized, double-blind, placebo-controlled trial. *Am.J.Kidney Dis.* 2012;60(6):896-903. [View abstract](#).

63251

Fried, M. W., Navarro, V. J., Afdhal, N., Belle, S. H., Wahed, A. S., Hawke, R. L., Doo, E., Meyers, C. M., and Reddy, K. R. Effect of silymarin (milk thistle) on liver disease in patients with chronic hepatitis C unsuccessfully treated with interferon therapy: a randomized controlled trial. *JAMA* 7-18-2012;308(3):274-282. [View abstract](#).

63252

- Giorgi, V. S., Peracoli, M. T., Peracoli, J. C., Witkin, S. S., and Bannwart-Castro, C. F. Silibinin modulates the NF-kappab pathway and pro-inflammatory cytokine production by mononuclear cells from preeclamptic women. *J.Reprod.Immunol.* 2012;95(1-2):67-72. [View abstract](#). **63253**
- Sonnenbichler, J. and Zetl, I. Biochemical effects of the flavonolignane silibinin on RNA, protein and DNA synthesis in rat livers. *Prog.Clin Biol Res* 1986;213:319-331. [View abstract](#). **63255**
- Somogyi, A., Ecsei, G. G., Blazovics, A., Miskolczi, K., Gergely, P., and Feher, J. Short term treatment of type II hyperlipoproteinaemia with silymarin. *Acta Med Hung.* 1989;46(4):289-295. [View abstract](#). **63258**
- Sonnenbichler, J., Goldberg, M., Hane, L., Madubunyi, I., Vogl, S., and Zetl, I. Stimulatory effect of Silibinin on the DNA synthesis in partially hepatectomized rat livers: non-response in hepatoma and other malign cell lines. *Biochem.Pharmacol* 2-1-1986;35(3):538-541. [View abstract](#). **63260**
- Lang, I., Deak, G., Nekam, K., Muzes, G., Gonzalez-Cabello, R., Gergely, P., and Feher, J. Hepatoprotective and immunomodulatory effects of antioxidant therapy. *Acta Med Hung.* 1988;45(3-4):287-295. [View abstract](#). **63262**
- Feher, J., Lang, I., Nekam, K., Muzes, G., and Deak, G. Effect of free radical scavengers on superoxide dismutase (SOD) enzyme in patients with alcoholic cirrhosis. *Acta Med Hung.* 1988;45(3-4):265-276. [View abstract](#). **63263**
- Magliulo, E., Gagliardi, B., and Fiori, G. P. [Results of a double blind study on the effect of silymarin in the treatment of acute viral hepatitis, carried out at two medical centres (author's transl)]. *Med Klin.* 7-14-1978;73(28-29):1060-1065. [View abstract](#). **63264**
- Valenzuela, A., Lagos, C., Schmidt, K., and Videla, L. A. Silymarin protection against hepatic lipid peroxidation induced by acute ethanol intoxication in the rat. *Biochem.Pharmacol* 6-15-1985;34(12):2209-2212. [View abstract](#). **63270**
- Schriewer, H. and Rauen, H. M. [The effect of silybin dihemisuccinate on cholesterol biosynthesis in rat liver homogenates (author's transl)]. *Arzneimittelforschung*. 1977;27(9):1691-1694. [View abstract](#). **63272**
- Hikino, H., Kiso, Y., Wagner, H., and Fiebig, M. Antihepatotoxic actions of flavonolignans from *Silybum marianum* fruits. *Planta Med* 1984;50(3):248-250. [View abstract](#). **63277**
- De Martiis, M., Fontana, M., Assogna, G., D'Ottavi, R., and D'Ottavi, O. [Milk thistle (*Silybum marianum*) derivatives in the therapy of chronic hepatopathies]. *Clin Ter.* 8-15-1980;94(3):283-315. [View abstract](#). **63278**
- Benda, L., Dittrich, H., Ferenzi, P., Frank, H., and Wewalka, F. [The influence of therapy with silymarin on the survival rate of patients with liver cirrhosis (author's transl)]. *Wien.Klin.Wochenschr.* 10-10-1980;92(19):678-683. [View abstract](#). **63279**
- Tyutyulkova, N., Tuneva, S., Gorantcheva, U., Tanev, G., Zhivkov, V., Chelibonova-Lorer, H., and Bozhkov, S. Hepatoprotective effect of silymarin (carsil) on liver of D- galactosamine treated rats. *Biochemical and morphological investigations. Methods Find.Exp Clin Pharmacol* 1981;3(2):71-77. [View abstract](#). **63280**
- Boari, C., Montanari, F. M., Galletti, G. P., Rizzoli, D., Baldi, E., Caudarella, R., and Gennari, P. [Toxic occupational liver diseases. Therapeutic effects of silymarin]. *Minerva Med* 10-20-1981;72(40):2679-2688. [View abstract](#). **63281**

- Flory, P. J., Krug, G., Lorenz, D., and Mennicke, W. H. [Studies on elimination of silymarin in cholecystectomized patients. I. Biliary and renal elimination after a single oral dose]. Planta Med 1980;38(3):227-237. [View abstract](#). **63282**
- Comoglio, A., Tomasi, A., Malandrino, S., Poli, G., and Albano, E. Scavenging effect of silipide, a new silybin-phospholipid complex, on ethanol-derived free radicals. Biochem.Pharmacol 10-12-1995;50(8):1313-1316. [View abstract](#).
- Gatti, G. and Perucca, E. Plasma concentrations of free and conjugated silybin after oral intake of a silybin-phosphatidylcholine complex (silipide) in healthy volunteers. Int.J Clin Pharmacol.Ther. 1994;32(11):614-617. [View abstract](#). **63285**
- Zhang, J. Q., Mao, X. M., and Zhou, Y. P. [Effects of silybin on red blood cell sorbitol and nerve conduction velocity in diabetic patients]. Zhongguo Zhong.Xi.Yi.Jie.He.Za Zhi. 1993;13(12):725-6, 708. [View abstract](#).
- Bode, J. C., Schmidt, U., and Durr, H. K. [Silymarin for the treatment of acute viral hepatitis? Report of a controlled trial (author's transl)]. Med Klin. 3-25-1977;72(12):513-518. [View abstract](#).
- Dehmlow, C., Murawski, N., and de Groot, H. Scavenging of reactive oxygen species and inhibition of arachidonic acid metabolism by silibinin in human cells. Life Sci 1996;58(18):1591-1600. [View abstract](#). **63289**
- Gaedeke, J., Fels, L. M., Bokemeyer, C., Mengs, U., Stolte, H., and Lentzen, H. Cisplatin nephrotoxicity and protection by silibinin. Nephrol.Dial.Transplant. 1996;11(1):55-62. [View abstract](#). **63290**
- Carducci, R., Armellino, M. F., Volpe, C., Basile, G., Caso, N., Apicella, A., and Basile, V. [Silibinin and acute poisoning with Amanita phalloides]. Minerva Anestesiol. 1996;62(5):187-193. [View abstract](#). **63293**
- Wenzel, S., Stolte, H., and Soose, M. Effects of silibinin and antioxidants on high glucose-induced alterations of fibronectin turnover in human mesangial cell cultures. J Pharmacol Exp Ther 1996;279(3):1520-1526. [View abstract](#). **63294**
- Bokemeyer, C., Fels, L. M., Dunn, T., Voigt, W., Gaedeke, J., Schmoll, H. J., Stolte, H., and Lentzen, H. Silibinin protects against cisplatin-induced nephrotoxicity without compromising cisplatin or ifosfamide anti-tumour activity. Br J Cancer 1996;74(12):2036-2041. [View abstract](#). **63295**
- Basaga, H., Poli, G., Tekkaya, C., and Aras, I. Free radical scavenging and antioxidative properties of 'silibin' complexes on microsomal lipid peroxidation. Cell Biochem Funct. 1997;15(1):27-33. [View abstract](#). **63296**
- Katiyar, S. K., Korman, N. J., Mukhtar, H., and Agarwal, R. Protective effects of silymarin against photocarcinogenesis in a mouse skin model. J Natl.Cancer Inst. 4-16-1997;89(8):556-566. [View abstract](#). **63299**
- Kiesewetter, E., Leodolter, I., and Thaler, H. [Results of two double-blind studies on the effect of silymarine in chronic hepatitis (author's transl)]. Leber Magen Darm 1977;7(5):318-323. [View abstract](#).
- Zi, X., Mukhtar, H., and Agarwal, R. Novel cancer chemopreventive effects of a flavonoid antioxidant silymarin: inhibition of mRNA expression of an endogenous tumor promoter TNF alpha. Biochem.Biophys.Res Commun. 10-9-1997;239(1):334-339. [View abstract](#). **63300**
- Ramellini, G. and Meldolesi, J. Liver protection by silymarin: in vitro effect on dissociated rat hepatocytes. Arzneimittelforschung. 1976;26(1):69-73. [View abstract](#). **63303**

- 63305
- Locher, R., Suter, P. M., Weyhenmeyer, R., and Vetter, W. Inhibitory action of silibinin on low density lipoprotein oxidation. *Arzneimittelforschung*. 1998;48(3):236-239. [View abstract](#).
- 63308
- Zima, T., Kamenikova, L., Janebova, M., Buchar, E., Crkovska, J., and Tesar, V. The effect of silibinin on experimental cyclosporine nephrotoxicity. *Ren Fail*. 1998;20(3):471-479. [View abstract](#).
- 63309
- Soto, C. P., Perez, B. L., Favari, L. P., and Reyes, J. L. Prevention of alloxan-induced diabetes mellitus in the rat by silymarin. *Comp Biochem Physiol C.Pharmacol Toxicol.Endocrinol.* 1998;119(2):125-129. [View abstract](#).
- 63310
- Skottova, N. and Krecman, V. Silymarin as a potential hypocholesterolaemic drug. *Physiol Res* 1998;47(1):1-7. [View abstract](#).
- 63311
- Savio, D., Harrasser, P. C., and Basso, G. Softgel capsule technology as an enhancer device for the absorption of natural principles in humans. A bioavailability cross-over randomised study on silybin. *Arzneimittelforschung*. 1998;48(11):1104-1106. [View abstract](#).
- 63312
- Lahiri-Chatterjee, M., Katiyar, S. K., Mohan, R. R., and Agarwal, R. A flavonoid antioxidant, silymarin, affords exceptionally high protection against tumor promotion in the SENCAR mouse skin tumorigenesis model. *Cancer Res* 2-1-1999;59(3):622-632. [View abstract](#).
- 63314
- Fallah Huseini, H., Larjani, B., Fakhrzadeh, H., Rajabi Pour, B., Akhondzadeh, S., Toliat, T., and Heshmat, R. The clinical trial of Silybum Marianum seed extract (Silymarin) on type II diabetic patients with hyperlipidemia. *Iran J Diabetes Lipid Disord*. 2004;3(2):201-206.
- 63315
- Mironets VI, Krasovskaia EA, and Polishchuk II. [A case of urticaria during Carsil treatment]. *Vrach Delo* 1990;7:86-87.
- 63317
- Cavalieri S. A controlled clinical trial of Legalon in 40 patients. *Gazz Med Ital* 1974;133:628-635.
- 63318
- Velussi M, Cernigoi AM, Viezzoli L, and et al. Silymarin reduces hyperinsulinemia, malondialdehyde levels, and daily insulin need in cirrhotic diabetic patients. *Curr Ther Res* 1993;53(5):533-545.
- 63320
- Marcelli R, Bizzoni P, Conte D, and et al. Randomized controlled study of the efficacy and tolerability of a short course of IdB 1016 in the treatment of chronic persistent hepatitis. *Eur Bull Drug Res* 1992;1(3):131-135.
- 63321
- Vailati A, Aristia L, Sozze E, and et al. Randomized open study of the dose-effect relationship of a short course of IdB 1016 in patients with viral or alcoholic hepatitis. *Fitoterapia* 1993;64(3):219-228.
- 63323
- Marena C and Lampertico M. Preliminary clinical development of silipide: a new complex of silybin in toxic liver disorders. *Planta Med* 1991;57(2):A124-A125.
- 63324
- Grungreiff K, Albrecht M, and Strenge-Hesse A. Benefit of medicinal liver therapy in general practice. *Med Welt* 1995;46:222-227.
- 63325
- Frerick F, Kuhn U, and Strenge-Hesse A. Silymarin--ein Phytopharmakon zur Behandlung toxischen Leberschaden: Anwendungsbeobachtung bei 2169 Patienten. *Kassenarzt* 1990;33:36-41.
- 63326
- Albrecht M, Frerick H, Kuhn U, and et al. Die Therapie toxischer Leberschaden mit Legalon. *Z Klin Med* 1992;47(2):87-92.
- 63327

Schuppan D, Strosser W, Burkard G, and et al. Influence of Legalon(TM) 140 on the metabolism of collagen in patients with chronic liver disease--Review by measurement of PIIINP-values. Zeitschrift fur Allgemeinmedizin 1998;74:577-584.

63328

Studlar M. Die Behandlung chronischer Leberkrankungen mit Silymarin und B-Vitaminen. Therapiewoche 1985;35:3375-3378.

63329

Anon. Adverse reaction: milk thistle-associated toxicity. Nurse Drug Alert 1999;23(7):51.

63331

Mira ML, Azevedo MS, and Manso C. The neutralization of hydroxyl radical by silibin, sorbinil and bendazac. Free Radical Res Commun 1987;4(125):129.

63336

Sonnenbichler J and Zetl I. Stimulating influence of a flavonolignane derivative on proliferation, RNA synthesis and protein synthesis in liver cells. In: Okoliczanyi L, Csomas G, Crepaldi G, and et al. Assessment and Management of Hepatobiliary Disease. Berlin: Springer-Verlag;1987.

63339

Fintelmann V. Zur Therapie der Fettleber mit Silymarin. Therapiewoche 1970;20:1055-2064.

63340

Lirussi F, Nassuato G, Orlando R, and et al. Treatment of active cirrhosis with ursodeoxycholic acid and a free radical scavenger: A two year prospective study. Med Sci Ress 1995;23:31-33.

63344

Palasciano G, Portincasa P, Palmieri V, and et al. The effect of silymarin on plasma levels of malon-dialdehyde in patients receiving long-term treatment with psychotropic drugs. Current Therapeutic Research 1994;55(5):537-545.

88152

FDA letter to GCI Nutrients Worldwide Inc. February 16, 2005. Available at: www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/EnforcementActivitiesbyFDA/CyberLetters/ucm126468.pdf (Accessed 4/2/15).

88153

Abenavoli L, Capasso R, Milic N, Capasso F. Milk thistle in liver diseases: past, present, future. Phytother Res 2010;24:1423-32. [View abstract](#).

88154

Moayedi B, Gharagozloo M, Esmaeil N, et al. A randomized double-blind, placebo-controlled study of therapeutic effects of silymarin in β-thalassemia major patients receiving desferrioxamine. Eur J Haematol 2013;90(3):202-9. [View abstract](#).

88155

Vostalova J, Vidlar A, Ulrichova J, et al. Use of selenium-silymarin mix reduces lower urinary tract symptoms and prostate specific antigen in men. Phytomedicine 2013;21:75-81. [View abstract](#).

88156

Yang Z, Zhuang L, Lu Y, Xu Q, Chen X. Effects and tolerance of silymarin (milk thistle) in chronic hepatitis C virus infection patients: a meta-analysis of randomized controlled trials. Biomed Res Int. 2014;941085. doi: 10.1155/2014/941085. Epub 2014 Aug 27. [View abstract](#).

88157

Lee JI, Narayan M, Barrett JS. Analysis and comparison of active constituents in commercial standardized silymarin extracts by liquid chromatography-electrospray ionization mass spectrometry. J Chromatogr B Analyt Technol Biomed Life Sci 2007;845(1):95-103. [View abstract](#).

93024

Gufford BT, Chen G, Vergara AG, et al. Milk Thistle Constituents Inhibit Raloxifene Intestinal Glucuronidation: A Potential Clinically Relevant Natural Product-Drug Interaction. Drug Metab Dispos. 2015;43(9):1353-9. [View abstract](#).

93025

El-Shitany NA, Hegazy S, El-Desoky K. Evidences for antiosteoporotic and selective estrogen receptor modulator activity of silymarin compared with ethinylestradiol in ovariectomized rats. Phytomedicine. 2010;17(2):116-25. [View abstract](#).

93026

Seidlová-Wuttke D, Becker T, Christoffel V, Jarry H, Wuttke W. Silymarin is a selective estrogen receptor beta (ERbeta) agonist and has estrogenic effects in the metaphysis of the femur but no or antiestrogenic effects in the uterus of ovariectomized (ovx) rats. *J Steroid Biochem Mol Biol*. 2003;86(2):179-88. [View abstract](#).

93578

Jalloh MA, Gregory PJ, Hein D, et al. Dietary supplement interactions with antiretrovirals: a systematic review. *Int J STD AIDS*. 2017 Jan;28(1):4-15. [View abstract](#).