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Banaba Leaf Research Update Effects of dietary mulberry, Korean red ginseng, and banaba on glucose homeostasis in relation to PPAR-alpha, PPAR-gamma, and LPL mRNA expressions. *Life Sci.* 2005 Nov 12;77(26):3344-54. Department of Food and Nutrition, College of Human Ecology, Sookmyung Women's University, Seoul, Korea.

Effects of malted barley extract and banaba extract on blood glucose levels in genetically diabetic mice. *J Med Food.* 2004 Winter;7(4):487-90

Antidiabetic activity of a standardized extract (Glucosol) from *Lagerstroemia speciosa* leaves - banaba - in Type II diabetics. A dose-dependence study. *J Ethnopharmacol.* 2003 Jul;87(1):115-7. Judy WV, et al.

An extract of *Lagerstroemia speciosa* L. has insulin-like glucose uptake-stimulatory and adipocyte differentiation- inhibitory activities in 3T3-L1 cells. *J Nutr.* 2001 Sep;131(9):2242-7

Antiobesity activity of extracts from *Lagerstroemia speciosa* L. leaves on female KK-Ay mice. *J Nutr Sci Vitaminol (Tokyo).* 1999 Dec;45(6):791-5.

Hypoglycemic effect of extracts from *Lagerstroemia speciosa* L. banaba leaves in genetically diabetic KK-AY mice. *Biosci Biotechnol Biochem.* 1996 Feb;60(2):204-8.

Tannic acid in banaba herb Tannic acid stimulates glucose transport and inhibits adipocyte differentiation in 3T3- L1 cells. *J Nutr.* 2005 Feb;135(2):165-71. Liu X, Kim et al.

Antidiabetes and Anti-obesity Activity of *Lagerstroemia speciosa* Guy Klein,1 et al.

Berberine, a natural plant product, activates AMP-activated protein kinase with beneficial metabolic effects in diabetic and insulin-resistant states. Department of Biological Sciences, Seoul National University, San 56-1, Sillim- Dong .

Berberine-stimulated glucose uptake in L6 myotubes involves both AMPK and p38 MAPK Zhe Cheng et al.

M. R. Olthof, P. C. H. Hollman, M. B. Katan et al., "Chlorogenic acid and caffeic acid are absorbed in humans," *Journal of Nutrition*, vol. 131, no. 1, pp. 66–71, 2001. View at Google Scholar · View at Scopus

Crush It

www.corenutrionals.com

M. N. Clifford, "Chlorogenic acids and other cinnamates—nature, occurrence and dietary burden," *Journal of the Science of Food and Agriculture*, vol. 79, no. 3, pp. 362–372, 1999. [View at Google Scholar](#) · [View at Scopus](#)

M. N. Clifford, "Chlorogenic acids and other cinnamates—nature, occurrence, dietary burden, absorption and metabolism," *Journal of the Science of Food and Agriculture*, vol. 80, no. 7, pp. 1033–1043, 2000. [View at Google Scholar](#) · [View at Scopus](#)

Y. Kono, K. Kobayashi, S. Tagawa et al., "Antioxidant activity of polyphenolics in diets. Rate constants of reactions of chlorogenic acid and caffeic acid with reactive species of oxygen and nitrogen," *Biochimica et Biophysica Acta—General Subjects*, vol. 1335, no. 3, pp. 335–342, 1997. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

H. Kasai, S. Fukada, Z. Yamaizumi, S. Sugie, and H. Mori, "Action of chlorogenic acid in vegetables and fruits as an inhibitor of 8-hydroxydeoxyguanosine formation in vitro and in a rat carcinogenesis model," *Food and Chemical Toxicology*, vol. 38, no. 5, pp. 467–471, 2000. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

M. D. dos Santos, M. C. Almeida, N. P. Lopes, and G. E. P. de Souza, "Evaluation of the anti-inflammatory, analgesic and antipyretic activities of the natural polyphenol chlorogenic acid," *Biological and Pharmaceutical Bulletin*, vol. 29, no. 11, pp. 2236–2240, 2006. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

R. Feng, Y. Lu, L. L. Bowman, Y. Qian, V. Castranova, and M. Ding, "Inhibition of activator protein-1, NF- κ B, and MAPKs and induction of phase 2 detoxifying enzyme activity by chlorogenic acid," *Journal of Biological Chemistry*, vol. 280, no. 30, pp. 27888–27895, 2005. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

B. K. Bassoli, P. Cassolla, G. R. Borba-Murad et al., "Chlorogenic acid reduces the plasma glucose peak in the oral glucose tolerance test: effects on hepatic glucose release and glycaemia," *Cell Biochemistry and Function*, vol. 26, no. 3, pp. 320–328, 2008. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

F.-L. Hsu, Y.-C. Chen, and J.-T. Cheng, "Caffeic acid as active principle from the fruit of *Xanthium strumarium* to lower plasma glucose in diabetic rats," *Planta Medica*, vol. 66, no. 3, pp. 228–230, 2000. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

D. V. Rodriguez de Sotillo and M. Hadley, "Chlorogenic acid modifies plasma and liver concentrations of: cholesterol, triacylglycerol, and minerals in (fa/fa) Zucker rats," *Journal of Nutritional Biochemistry*, vol. 13, no. 12, pp. 717–726, 2002. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

D. V. Rodriguez de Sotillo, M. Hadley, and J. E. Sotillo, "Insulin receptor exon 11+/- is expressed in Zucker (fa/fa) rats, and chlorogenic acid modifies their plasma insulin and

liver protein and DNA,” *Journal of Nutritional Biochemistry*, vol. 17, no. 1, pp. 63–71, 2006. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

P. Nicasio, L. Aguilar-Santamaría, E. Aranda, S. Ortiz, and M. González, “Hypoglycemic effect and chlorogenic acid content in two *Cecropia* species,” *Phytotherapy Research*, vol. 19, no. 8, pp. 661–664, 2005. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

L.-T. Zhang, C.-Q. Chang, Y. Liu, and Z.-M. Chen, “Effect of chlorogenic acid on disordered glucose and lipid metabolism in db/db mice and its mechanism,” *Acta Academiae Medicinae Sinicae*, vol. 33, no. 3, pp. 281–286, 2011 (Chinese). [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

K. W. Ong, A. Hsu, and B. K. Tan, “Anti-diabetic and anti-lipidemic effects of chlorogenic acid are mediated by ampk activation,” *Biochemical Pharmacology*, vol. 85, no. 9, pp. 1341–1351, 2013. [View at Publisher](#) · [View at Google Scholar](#)

C. W. Wan, C. N. Wong, W. K. Pin et al., “Exhibits cholesterol lowering and fatty liver attenuating properties by up-regulating the gene expression of PPAR- α ,” *Phytotherapy Research*, vol. 27, no. 4, pp. 545–551, 2013. [View at Publisher](#) · [View at Google Scholar](#)

Z. Z. Huang and C. Q. Chang, “Advances of study on glucose and lipids metabolism of chlorogenic acid regulating,” *Journal of Hygiene Research*, vol. 37, no. 5, pp. 637–639, 2008 (Chinese). [View at Google Scholar](#)

R. Gao, Y. N. Lin, G. Liang, and Y. Gao, “Absorption and metabolism of chlorogenic acid,” *Chinese Journal of Experimental Traditional Medical Formulae*, vol. 18, no. 10, pp. 316–319, 2012 (Chinese). [View at Google Scholar](#)

E. E. Agardh, S. Carlsson, A. Ahlbom et al., “Coffee consumption, type 2 diabetes and impaired glucose tolerance in Swedish men and women,” *Journal of Internal Medicine*, vol. 255, no. 6, pp. 645–652, 2004. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

W.-Y. Lin, F. Xavier Pi-Sunyer, C.-C. Chen et al., “Coffee consumption is inversely associated with type 2 diabetes in Chinese,” *European Journal of Clinical Investigation*, vol. 41, no. 6, pp. 659–666, 2011. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#).

M. A. Pereira, E. D. Parker, and A. R. Folsom, “Coffee consumption and risk of type 2 diabetes mellitus: an 11 -year prospective study of 28 812 postmenopausal women,” *Archives of Internal Medicine*, vol. 166, no. 12, pp. 1311– 1316, 2006. [View at Publisher](#) · [View at Google Scholar](#) · [View at Scopus](#)

Mhasker KS, Caius JF. A study of Indian medicinal plants. II. *Gymnema sylvestre* R.Br. *Indian J Med Res Memoirs* 1930;16:2–75.

Shanmugasundaram KR, Panneerselvam C, Sumudram P, Shanmugasundaram ERB. Insulinotropic activity of *G. sylvestre*, R.Br. and Indian medicinal herb used in controlling diabetes mellitus. *Pharmacol Res Commun* 1981;13:475–86.

Shanmugasundaram ERB, Leela Gopinath K, Radha Shanmugasundaram K, Rajendran VM. Possible regeneration of the islets of Langerhans in streptozotocin diabetic rats given *Gymnema sylvestre* leaf extracts. *J Ethnopharmacol* 1990;30:265–79.

Bishayee A, Chatterjee M. Hypolipidemic and antiatherosclerotic effects of oral *Gymnema sylvestre* R.Br. leaf extract in albino rats fed on high fat diet. *Phytother Res* 1994;8:118–20.

Gymnema. Lawrence Review of Natural Products Aug 1993 (monograph). Fushiki T, Kojima A, Imoto T, et al. An extract of *Gymnema sylvestre* leaves and purified gymnemic acid inhibits glucose-stimulated gastric inhibitory peptide secretion in rats. *J Nutr* 1992;122:2367–73. 1995.

Ulbricht C, Dam C, Milkin T, Seamon E, Weissner W, Woods J. Banaba (*Lagerstroemia speciosa* L.): an evidence - based systematic review by the natural standard research collaboration. *Journal of Herbal Pharmacotherapy*. 2007;7(1):99–113. [PubMed]

Park C, Lee JS. Banaba: the natural remedy as antidiabetic drug. *Biomedical Research*. 2011;22:127–131.

Klein G, Kim J, Himmeldirk K, Cao Y, Chen X. Antidiabetes and anti-obesity activity of *Lagerstroemia speciosa*. *Evidence-based Complementary and Alternative Medicine*. 2007;4(4):401–407. [PMC free article] [PubMed]

Kim E, Sy-Cordero A, Graf TN, Brantley SJ, Paine MF, Oberlies NH. Isolation and identification of intestinal CYP3A inhibitors from ranberry (*Vaccinium macrocarpon*) using human intestinal microsomes. *Planta Medica*. 2011;77(3):265–270. [PMC free article] [PubMed]

Aguirre MC, Delporte C, Backhouse N, et al. Topical anti-inflammatory activity of 2 α -hydroxy pentacyclic triterpene acids from the leaves of *Ugni molinae*. *Bioorganic and Medicinal Chemistry*. 2006;14(16):5673–5677. [PubMed]

Hu C, Chen L, Xin Y, Cai Q. Determination of corosolic acid in *Eriobotrya japonica* leaves by reversed-phase high performance liquid chromatography. *Se Pu*. 2006;24(5):492–494. [PubMed]

Hou W, Li Y, Zhang Q, et al. Triterpene acids isolated from *Lagerstroemia speciosa* leaves as α -glucosidase inhibitors. *Phytotherapy Research*. 2009;23(5):614–618. [PubMed]

Lu H, Chen J, Li WL, Zhang HQ. Studies on the triterpenes from ioquat leaf (*Eriobotrya japonica*) Zhang Yao Cai. 2008;31:1351–1354. [PubMed]

Lu H, Xi C, Chen J, Li W. Determination of triterpenoid acids in leaves of *Eriobotrya japonica* collected at in different seasons. *Zhongguo Zhongyao Zazhi*. 2009;34(18):2353–2355. [PubMed]

Rollinger JM, Kratschmar DV, Schuster D, et al. 11β -Hydroxysteroid dehydrogenase 1 inhibiting constituents from *Eriobotrya japonica* revealed by bioactivity-guided isolation and computational approaches. *Bioorganic and Medicinal Chemistry*. 2010;18(4):1507–1515. [PubMed]

Banno N, Akihisa T, Tokuda H, et al. Triterpene acids from the leaves of *Perilla frutescens* and their anti-inflammatory and antitumor-promoting effects. *Bioscience, Biotechnology and Biochemistry*. 2004;68(1):85–90. [PubMed]

Thuong PT, Min BS, Jin W, et al. Anti-complementary activity of ursane-type triterpenoids from *Weigela subsessilis*. *Biological and Pharmaceutical Bulletin*. 2006;29(4):830–833. [PubMed]

Lee MS, Thuong PT. Stimulation of glucose uptake by triterpenoids from *Weigela subsessilis*. *Phytotherapy Research*. 2010;24(1):49–53. [PubMed]

Yang NY, Duan JA, Li P, Qian SH. Chemical constituents of *Glechoma longituba*. *Yaoxue Xuebao*. 2006;41(5):431–434. [PubMed]

Shen Y, Wang QH, Lin HW, Shu W, Zhou JB, Li ZY. Study on chemical constituents of *Potentilla chinensis* Ser. *Zhong Yao Cai*. 2006;29(3):237–239. [PubMed]

Kang SH, Shi YQ, Yang CX. Triterpenoids and steroids of root of *Rubus biflorus*. *Zhong Yao Cai*. 2008;31(11):1669–1671. [PubMed]

Liu P, Deng R, Duan H, Yin W. Chemical constituents from roots of *Phlomis umbrosa*. *Zhongguo Zhongyao Zazhi*. 2009;34(7):867–870. [PubMed]

Ikeda Y, Chen JT, Matsuda T. Effectiveness and safety of banabamin tablet containing extract from banaba in patients with mild type 2 diabetes. *Japanese Pharmacology and Therapeutics*. 1999;27(5):72–73. (Jpn).



Ikedo Y, Noguchi M, Kishi S, et al. Blood glucose controlling effects and safety of single and long-term administration on the extract of banaba leaves. *Journal of Nutrition & Food*. 2002;5:41–53. (Jpn).

Judy WV, Hari SP, Stogsdill WW, Judy JS, Naguib YMA, Passwater R. Antidiabetic activity of a standardized extract (Glucosol) from *Lagerstroemia speciosa* leaves in Type II diabetics: a dose-dependence study. *Journal of Ethnopharmacology*. 2003;87(1):115–117. [PubMed]

Lieberman S, Spahrs R, Stanton A, Martinez L, Grindler M. Weight loss, body measurements, and compliance: a 12 - week total lifestyle intervention pilot study. *Alternative and Complementary Therapies*. 2005;11(6):307–313.

Tsuchibe S, Kataumi S, Mori M, Mori H. An inhibitory effect on the increase in the postprandial glucose by banaba extract capsule enriched corosolic acid. *Journal for the Integrated Study of Dietary Habits*. 2006;17:255–259.

Fukushima M, Matsuyama F, Ueda N, et al. Effects of corosolic acid on post-challenge plasma glucose levels. *Diabetes Research and Clinical Practice*. 2006;73:174–177. [PubMed]

Zheng JQ, Zheng CM, Lu KC. Corosolic acid-induced acute kidney injury and lactic acidosis in a patient with impaired kidney function. *American Journal of Kidney Disease*. 2010;56(2):419–420. [PubMed]

Garcia F. On the hypoglycemic effect of a decoction of *Lagerstroemia speciosa* leaves (banaba) administered orally. *Philippine Medical Association*. 1940;20:193–201.

Garcia F. Distribution and deterioration of insulin-like principle in *Lagerstroemia speciosa* (banaba) *Acta Medica Philippina*. 1941;3:99–104.

Kakuda T, Sakane I, Takihara T, Ozaki Y, Takeuchi H, Kuroyanagi M. Hypoglycemic effect of extracts from *Lagerstroemia speciosa* L. Leaves in genetically diabetic KK-A^y mice. *Bioscience, Biotechnology and Biochemistry*. 1996;60(2):204–208. [PubMed]

Suzuki Y, Hayashi K, Sukabe I, Kakuda T. Effects and mode of action of banaba (*Lagerstroemia speciosa* L.) leaf extracts on postprandial blood glucose in rats. *Japan Society of Nutrition and Food Science*. 2001;54:131–137. Yamaguchi Y, Yamada K, Yoshikawa N, Nakamura K, Haginaka J, Kunitomo M. Corosolic acid prevents oxidative stress, inflammation and hypertension in SHR/NDmcr-cp rats, a model of metabolic syndrome. *Life Sciences*. 2006;79(26):2474–2479. [PubMed]

Matsuura T, Yoshikawa Y, Masui H, Sano M. Suppression of glucose absorption by various health teas in rats. *Yakugaku Zasshi*. 2004;124(4):217–223. [PubMed]

Crush It

www.corenutrionals.com



Hong H, Won JM. Effects of malted barley extract and banaba extract on blood glucose levels in genetically diabetic mice. *Journal of Medicinal Food*. 2004;7(4):487–490. [PubMed]

Yamada K, Hogokowa M, Fujimoto S. Effect of corosolic acid on gluconeogenesis in rat liver. *Diabetes Research and Clinical Practice*. 2008;80:48–55. [PubMed]

Yamada K, Hosokawa M, Yamada C, et al. Dietary corosolic acid ameliorates obesity and hepatic steatosis in KK- Ay mice. *Biological and Pharmaceutical Bulletin*. 2008;31(4):651–655. [PubMed]

Deocaris CC, Aguinaldo RR, dela Ysla JL, Asencion AS, Mojica E ERE. Hypoglycemic activity of irradiated banaba (*Lagerstroemia speciosa* L.) leaves. *Journal of Applied Sciences Research*. 2005;1:95–98.

Park MY, Lee KS, Sung MK. Effects of dietary mulberry, Korean red ginseng, and banaba on glucose homeostasis in relation to PPAR- α , PPAR- γ , and LPL mRNA expressions. *Life Sciences*. 2005;77(26):3344–3354. [PubMed]

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