Tagatose Promotes Dental Health

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FDA-Approved Health Claim (21 C.F.R. § 101.80)

- "Frequent eating of foods high in sugars and starches as between-meal snacks can promote tooth decay. Tagatose, the sugar used to sweeten this food, unlike other sugars, may reduce the risk of dental caries."

EFSA-Approved General Function Claim (Commission Regulation (EU) No. 432/2012)

- "Consumption of foods/ drinks containing D-tagatose instead of sugar contributes to the maintenance of tooth mineralization"

Prevents Reductions in Plaque pH

- Arla Foods Ingredients. Noncariogenicity Dental Health Claim Petition for D-tagatose. FDA-2002-P-0046-0003. 2002.
- Hasibul K, Nakayama-Imaohji H, Hashimoto M, Yamasaki H, Ogawa T, Waki J, Tada A, Yoneda S, Tokuda M, Miyake M, Kuwahara T. D-Tagatose inhibits the growth and biofilm formation of Streptococcus mutans. Mol Med Rep. 2018, 17(1):843-851. doi: 10.3892/mmr.2017.8017.
- Sawada D, Ogawa T, Miyake M, Hasui Y, Yamaguchi F, Izumori K, Tokuda M. Potent inhibitory effects of D-tagatose on the acid production and water-insoluble glucan synthesis of Streptococcus mutans GS5 in the presence of sucrose. Acta Med Okayama. 2015, 69(2):105-11.

Reduces Growth of Acid-Tolerating Bacteria

- Hasibul K, Nakayama-Imaohji H, Hashimoto M, Yamasaki H, Ogawa T, Waki J, Tada A, Yoneda S, Tokuda M, Miyake M, Kuwahara T. D-Tagatose inhibits the growth and biofilm formation of Streptococcus mutans. Mol Med Rep. 2018, 17(1):843-851. doi: 10.3892/mmr.2017.8017.
- Sawada D, Ogawa T, Miyake M, Hasui Y, Yamaguchi F, Izumori K, Tokuda M. Potent inhibitory effects of D-tagatose on the acid production and water-insoluble glucan synthesis of Streptococcus mutans GS5 in the presence of sucrose. Acta Med Okayama. 2015, 69(2):105-11.

Reduces Production of Water-Insoluble Glucan

- Sawada D, Ogawa T, Miyake M, Hasui Y, Yamaguchi F, Izumori K, Tokuda M. Potent inhibitory effects of D-tagatose on the acid production and water-insoluble glucan synthesis of Streptococcus mutans GS5 in the presence of sucrose. Acta Med Okayama. 2015, 69(2):105-11.

Removes Dental Plaque

- Levin, G.V. D-tagatose as an anti biofilm agent. U.S. Patent US 7,189,351B2. 2007.
- Lu Y, Levin GV. Removal and prevention of dental plaque with d-tagatose.Int J Cosmet Sci. 2002, 24(4):225-34. doi: 10.1046/j.1467-2494.2002.00141.x.

Prevents Dental Plaque Formation

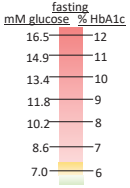
- Hasibul K, Nakayama-Imaohji H, Hashimoto M, Yamasaki H, Ogawa T, Waki J, Tada A, Yoneda S, Tokuda M, Miyake M, Kuwahara T. D-Tagatose inhibits the growth and biofilm formation of Streptococcus mutans. Mol Med Rep. 2018, 17(1):843-851. doi: 10.3892/mmr.2017.8017.
- Levin, G.V. D-tagatose as an anti biofilm agent. U.S. Patent US 7,189,351B2. 2007.

Cleans Teeth

- Metzer S, Schmalzbauer B, Benzing K. Use of a monosaccharide for sub-and/or supragingival tooth cleaning. US Patent application 2019/0099345A1. 2019.

Reduces Oral Disease

- Levin, G.V. D-tagatose as an anti biofilm agent. U.S. Patent US 7,189,351B2. 2007.



Tagatose Promotes Glycemic Control

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Reduces Fasting Glucose Levels

- Ensor M, Banfield AB, Smith RR, Williams J, Lodder RA. Safety and Efficacy of D-Tagatose in Glycemic Control in Subjects with Type 2 Diabetes. J Endocrinol Diabetes Obes. 2015, 3(1): 1065.
- Ensor M, Williams J, Smith R, Banfield A, Lodder RA. Effects of Three Low-Doses of D-Tagatose on Glycemic Control Over Six Months in Subjects with Mild Type 2 Diabetes Mellitus Under Control with Diet and Exercise. J Endocrinol Diabetes Obes. 2014, 2(4):1057.

Does Not Increase Fasting Glucose Levels

- Boesch C, Ith M, Jung B, Bruegger K, Erban S, Diamantis I, Kreis R, Bär A. Effect of oral D-tagatose on liver volume and hepatic glycogen accumulation in healthy male volunteers. Regul Toxicol Pharmacol. 2001 33(2):257-67.
- Buemann B, Toubro S, Astrup A. D-Tagatose, a stereoisomer of D-fructose, increases hydrogen production in humans without affecting 24-hour energy expenditure or respiratory exchange ratio. J Nutr. 1998 128(9):1481-6.
- Buemann B, Toubro S, Holst JJ, Rehfeld JF, Bibby BM, Astrup A. D-tagatose, a steroisomer of D-fructose, increases blood uric acid concentration. Metabolism 2000, 49(8):969-76.
- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018 Sep 19;2018:5042428. doi: 10.1155/2018/5042428.
- Donner TW, Magder LS, Zarbalian K. Dietary supplementation with d-tagatose in subjects with type 2 diabetes leads to weight loss and raises high-density lipoprotein cholesterol. Nutr Res. 2010, 30(12):801-6.
- Madenokoji N, Iino H, T S, Hayakawa J, M S. Blunting effect of D-tagatose on blood glucose when administered orally with glucose in volunteer donors of boundary glycemic level. J Jap Soc Clin Nutr. 2003, 25(1):21-28.
- Makris, N. Tagatose University of Maryland Clinical Study, Phase 2, Statistical Analysis for Biospherics Inc, Beltsville, MD.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.
- Saunders JP, Donner TW, Sadler JH, Levin GV, Makris NG. Effects of acute and repeated oral doses of D-tagatose on plasma uric acid in normal and diabetic humans. Regul Toxicol Pharmacol. 1999, 29(2 Pt 2):S57-65.
- Yadav D, Kim SJ, Bae MA, Kim JR, Cho KH.The Ability of Different Ketohexoses to Alter Apo-A-I Structure and Function In Vitro and to Induce Hepatosteatosis, Oxidative Stress, and Impaired Plasma Lipid Profile in Hyperlipidemic Zebrafish. Oxid Med Cell Longev. 2018: 3124364.

Reduces Post-prandial Glucose Levels

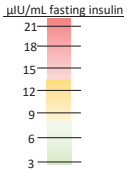
- Adamsen E, Shimotsuura S, Koikeda T. Potential Interference of D-Tagatose with the Medical Treatment of Diabetic Japanese Patients. Internal Study Report, Study 5, 2005.
- Buemann B, Toubro S, Holst JJ, Rehfeld JF, Bibby BM, Astrup A. D-tagatose, a steroisomer of D-fructose, increases blood uric acid concentration. Metabolism 2000, 49(8):969-76.
- Donner TW, Wilber JF, Ostrowski D. D-tagatose, a novel hexose: acute effects on carbohydrate tolerance in subjects with and without type 2 diabetes.Diabetes Obes Metab. 1999, 1(5):285-91.
- Kwak JH, Kim MS, Lee JH, Yang, YJ, Lee KH, Kim OY. Beneficial effect of tagatose consumption on postprandial hyperglycemia in Koreans: a double-blind crossover designed study. Food Func. 2013, 4:1223.
- Madenokoji N, Iino H, T S, Hayakawa J, M S. Blunting effect of D-tagatose on blood glucose when administered orally with glucose in volunteer donors of boundary glycemic level. J Jap Soc Clin Nutr. 2003, 25(1):21-28.
- Seri K, Sanai K, Shigenori N, Akino T. 1995. Prophylactic and Remedial Preparation for Diseases Attendant on Hyperglycemia, and Wholesome Food. US Patent No. 5468734.
- Wu T, Zhao BR, Bound MJ, Checklin HL, Bellon M, Little TJ, Young RL, Jones KL, Horowitz M, Rayner CK. Effects of different sweet preloads on incretin hormone secretion, gastric emptying, and postprandial glycemia in healthy humans. Am J Clin Nutr. 2012, 95(1):78-83.
- Yamazaki Y, Nakamura S, Shimura F, Oku T. Maximum Permissive Dosage for Transitory Diarrhea, Estimation of Available Energy, and Fate of D-tagatose in Healthy Female Subjects. Nippon Eiyo Shokuryo Gakkaishi, 2011, 64(6): 403-413.

Reduces HbA1c Levels

- Ensor M, Banfield AB, Smith RR, Williams J, Lodder RA. Safety and Efficacy of D-Tagatose in Glycemic Control in Subjects with Type 2 Diabetes. J Endocrinol Diabetes Obes. 2015, 3(1): 1065.
- Ensor M, Williams J, Smith R, Banfield A, Lodder RA. Effects of Three Low-Doses of D-Tagatose on Glycemic Control Over Six Months in Subjects with Mild Type 2 Diabetes Mellitus Under Control with Diet and Exercise. J Endocrinol Diabetes Obes. 2014, 2(4):1057.
- Makris, N. Tagatose University of Maryland Clinical Study, Phase 2, Statistical Analysis for Biospherics Inc, Beltsville, MD.

Does Not Increase HbA1c Levels

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.



Tagatose Promotes Glycemic Control

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Reduces Fasting Insulin Levels

- Boesch C, Ith M, Jung B, Bruegger K, Erban S, Diamantis I, Kreis R, Bär A. Effect of oral D-tagatose on liver volume and hepatic glycogen accumulation in healthy male volunteers. Regul Toxicol Pharmacol. 2001, 33(2):257-67.
- Buemann B, Toubro S, Astrup A. D-Tagatose, a stereoisomer of D-fructose, increases hydrogen production in humans without affecting 24-hour energy expenditure or respiratory exchange ratio. J Nutr. 1998, 128(9):1481-6.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.

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- Ensor M, Banfield AB, Smith RR, Williams J, Lodder RA. Safety and Efficacy of D-Tagatose in Glycemic Control in Subjects with Type 2 Diabetes. J Endocrinol Diabetes Obes. 2015, 3(1): 1065.
- Ensor M, Williams J, Smith R, Banfield A, Lodder RA. Effects of Three Low-Doses of D-Tagatose on Glycemic Control Over Six Months in Subjects with Mild Type 2 Diabetes Mellitus Under Control with Diet and Exercise. J Endocrinol Diabetes Obes. 2014, 2(4):1057.
- Donner TW, Magder LS, Zarbalian K. Dietary supplementation with d-tagatose in subjects with type 2 diabetes leads to weight loss and raises high-density lipoprotein cholesterol. Nutr Res. 2010, 30(12):801-6.
- Madenokoji N, Iino H, T S, Hayakawa J, M S. Blunting effect of D-tagatose on blood glucose when administered orally with glucose in volunteer donors of boundary glycemic level. J Jap Soc Clin Nutr. 2003, 25(1):21-28.
- Makris, N. Tagatose University of Maryland Clinical Study, Phase 2, Statistical Analysis for Biospherics Inc, Beltsville, MD.
- Saunders JP, Donner TW, Sadler JH, Levin GV, Makris NG. Effects of acute and repeated oral doses of D-tagatose on plasma uric acid in normal and diabetic humans. Regul Toxicol Pharmacol. 1999, 29(2 Pt 2):S57-65.

Reduces Post-prandial Insulin Levels

- Boesch C, Ith M, Jung B, Bruegger K, Erban S, Diamantis I, Kreis R, Bär A. Effect of oral D-tagatose on liver volume and hepatic glycogen accumulation in healthy male volunteers. Regul Toxicol Pharmacol. 2001, 33(2):257-67.
- Buemann B, Toubro S, Holst JJ, Rehfeld JF, Bibby BM, Astrup A. D-tagatose, a steroisomer of D-fructose, increases blood uric acid concentration. Metabolism 2000, 49(8):969-76.
- New Study Confirms Low Carb Value of Tagatose; Finds Spherix's Sweetener Has a Glycemic and Insulin Response of 3 Percent | New Hope Network. Spherix Inc press release of Sydney University's Glycaemic Index Research Service. Glycaemic Index Research Report for Arla Foods. Internal Study Report. http://www.newhope.com/news/new-study-confirms-low-carb-value-tagatose-finds-spherixs-sweetener-has-glycemic-and-insulin-re. Published 2004. Accessed December 14, 2017. Also published in http://www.glycemicindex.com/foodSearch.php.
- Wu T, Zhao BR, Bound MJ, Checklin HL, Bellon M, Little TJ, Young RL, Jones KL, Horowitz M, Rayner CK. Effects of different sweet preloads on incretin hormone secretion, gastric emptying, and postprandial glycemia in healthy humans. Am J Clin Nutr. 2012, 95(1):78-83.
- Yamazaki Y, Nakamura S, Shimura F, Oku T. Maximum Permissive Dosage for Transitory Diarrhea, Estimation of Available Energy, and Fate of D-tagatose in Healthy Female Subjects. Nippon Eiyo Shokuryo Gakkaishi, 2011, 64(6): 403-413.

Promotes Glycogen Synthesis

- Ciudad CJ, Carabaza A, Bosch F, Gòmez I Foix AM, Guinovart JJ.Glycogen synthase activation by sugars in isolated hepatocytes. Arch Biochem Biophys. 1988, 264(1):30-9.

EFSA-Approved General Function Claim (Commission Regulation (EU) No. 432/2012)

- "Consumption of foods/ drinks containing D-tagatose instead of sugar induces a lower blood glucose rise after their consumption compared to sugar- containing foods/drinks."

Tagatose is a Prebiotic

bonumose®

Fermented in Gut

- Buemann B, Toubro S, Astrup A. D-Tagatose, a stereoisomer of D-fructose, increases hydrogen production in humans without affecting 24-hour energy expenditure or respiratory exchange ratio. J Nutr. 1998, 128(9):1481-6.
- Yamazaki Y, Nakamura S, Shimura F, Oku T. Maximum Permissive Dosage for Transitory Diarrhea, Estimation of Available Energy, and Fate of D-tagatose in Healthy Female Subjects. Nippon Eiyo Shokuryo Gakkaishi 2011, 64(6): 403-413.

Increases Levels of Beneficial Bacteria

- Bertelsen H, Andersen H, Tvede M. Fermentation of D-tagatose by human intestinal bacteria and dairy lactic acid bacteria. Microb. Ecol. Health Dis. 2001, 13: 87–95.
- Bertelsen H, Jensen BB, Buemann B. D-tagatose, a novel low-calorie bulk sweetener with prebiotic properties. World Rev Nutr Diet 1999; 85: 98–109.
- Jensen B, Buemann B. D-Tagatose. The influence of D- tagatose on bacterial composition and fermentation capacity of faecal samples from human volunteers. Internal report of the Research Centre Foulum, Danish Institute of Agricultural Science, for MD Foods amba. 1998.
- Laerke HN, Jensen BB. D-tagatose has low small intestinal digestibility but high large intestinal fermentability in pigs. J Nutr. 1999, 129(5):1002-9.
- Laerke HN, Jensen BB, Højsgaard S. In vitro fermentation pattern of D-tagatose is affected by adaptation of the microbiota from the gastrointestinal tract of pigs. J Nutr. 2000, 130(7):1772-9.
- Liang Y-X, Wen P, Wang Y, OuYang D-M, Wang D, Chen Y-Z, Song Y, Deng J, Sun Y-M, Wang H. The Constipation-Relieving Property of d-Tagatose by Modulating the Composition of Gut Microbiota. Int. J. Mol. Sci. 2019, 20(22):5721.
- Venema K, Vermunt SHF, Brink EJ. D-tagatose increases butyrate production by the colonic microbiota in healthy men and women. Microb. Ecol. Health Dis. 2005, 17: 47–57.

Increases Levels of Beneficial Short-Chain Fatty Acids

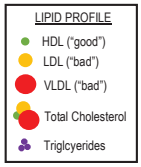
- Bertelsen H, Jensen BB, Buemann B. D-tagatose, a novel low-calorie bulk sweetener with prebiotic properties. World Rev Nutr Diet 1999, 85: 98–109.
- Laerke HN, Jensen BB. D-tagatose has low small intestinal digestibility but high large intestinal fermentability in pigs. J Nutr. 1999, 129(5):1002-9.
- Laerke HN, Jensen BB, Højsgaard S. In vitro fermentation pattern of D-tagatose is affected by adaptation of the microbiota from the gastrointestinal tract of pigs. J Nutr. 2000, 130(7):1772-9.
- Normén L, Laerke HN, Jensen BB, Langkilde AM, Andersson H. Small-bowel absorption of D-tagatose and related effects on carbohydrate digestibility: an ileostomy study. Am J Clin Nutr. 2001, 73(1):105-10.
- Saunders JP, Zehner LR, Levin GV.Disposition of D-[U-14C]tagatose in the rat. Regul Toxicol Pharmacol. 1999, 29(2 Pt 2):S46-56.
- Venema K, Vermunt SHF, Brink EJ. D-tagatose increases butyrate production by the colonic microbiota in healthy men and women. Microb. Ecol. Health Dis. 2005, 17: 47–57.

Increases Prebiotic Activity

- Koh JH, Choi SH, Park SW. et al. Synbiotic impact of tagatose on viability of Lactobacillus rhamnosus strain GG mediated by the phosphotransferase system (PTS). Food Microbiology 2013, 36(1): 7-13.

Prebiotic Activity Stabilized in Milk

- Rouhi M, Mohammadi R, Mortazavian AM, Sarlak Z. Combined effects of replacement of sucrose with D-tagatose and addition of different probiotic strains on quality characteristics of chocolate milk. Dairy Sci. & Technol. 2015, 95:115–133.



Tagatose Promotes a Healthy Lipid Profile

bonumose®

Reduces Total Cholesterol Levels

- Ensor M, Banfield AB, Smith RR, Williams J, Lodder RA. Safety and Efficacy of D-Tagatose in Glycemic Control in Subjects with Type 2 Diabetes. J Endocrinol Diabetes Obes. 2015, 3(1): 1065.
- Ensor M, Williams J, Banfield A, Smith R, Lodder R. Effect of BSN272 on Hyperlipidemia and Atherosclerosis in LDLr-/- Mice. Webmed Central 2016, https://www.webmedcentral.com/wmcpdf/Article_WMC005227.pdf.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.

Increases HDL Levels

- Donner TW, Magder LS, Zarbalian K. Dietary supplementation with d-tagatose in subjects with type 2 diabetes leads to weight loss and raises high-density lipoprotein cholesterol. Nutr Res. 2010, 30(12):801-6.

Does Not Decrease HDL Levels

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.

Reduces LDL and VLDL Levels

- Ensor M, Banfield AB, Smith RR, Williams J, Lodder RA. Safety and Efficacy of D-Tagatose in Glycemic Control in Subjects with Type 2 Diabetes. J Endocrinol Diabetes Obes. 2015, 3(1): 1065.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.

Does Not Increase LDL Levels

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.

Reduces Triglyceride Levels

- Buemann B, Toubro S, Astrup A. D-Tagatose, a stereoisomer of D-fructose, increases hydrogen production in humans without affecting 24-hour energy expenditure or respiratory exchange ratio. J Nutr. 1998, 128(9):1481-6.
- Ensor M, Williams J, Banfield A, Smith R, Lodder R. Effect of BSN272 on Hyperlipidemia and Atherosclerosis in LDLr-/- Mice. Webmed Central 2016, https://www.webmedcentral.com/wmcpdf/Article_WMC005227.pdf.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.
- Williams J, Ensor C, Gardner S, Smith R, Lodder R. BSN723T Prevents Atherosclerosis and Weight Gain in ApoE Knockout Mice Fed a Western Diet. Webmedcentral 2015, 6(12).

Does Not Increase Triglyceride Levels

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.

Tagatose Reduces Cardiovascular Disease Risk

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Reduces Body Weight

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.
- Donner TW, Magder LS, Zarbalian K. Dietary supplementation with d-tagatose in subjects with type 2 diabetes leads to weight loss and raises high-density lipoprotein cholesterol. Nutr Res. 2010, 30(12):801-6.
- Ensor M, Williams J, Smith R, Banfield A, Lodder RA. Effects of Three Low-Doses of D-Tagatose on Glycemic Control Over Six Months in Subjects with Mild Type 2 Diabetes Mellitus Under Control with Diet and Exercise. J Endocrinol Diabetes Obes. 2014, 2(4):1057.
- Makris, N. Tagatose University of Maryland Clinical Study, Phase 2, Statistical Analysis for Biospherics Inc, Beltsville, MD.
- Metts B, Thatcher S, Lewis E, Karounos M, Cassis L, Smith R, Lodder RA. DDDAS Design of Drug Interventions for the Treatment of Dyslipidemia in ApoE-/- Mice. J Dev Drugs. 2013, 2(2): 107.

Reduces Atherogenicity of Oxidized Cholesterol

- Yadav D, Kim SJ, Bae MA, Kim JR, Cho KH.The Ability of Different Ketohexoses to Alter Apo-A-I Structure and Function In Vitro and to Induce Hepatosteatosis, Oxidative Stress, and Impaired Plasma Lipid Profile in Hyperlipidemic Zebrafish. Oxid Med Cell Longev. 2018:3124364.

Reduces Atherosclerotic Lesion Development

- Metts B, Thatcher S, Lewis E, Karounos M, Cassis L, Smith R, Lodder RA. DDDAS Design of Drug Interventions for the Treatment of Dyslipidemia in ApoE-/- Mice. J Dev Drugs. 2013, 2(2): 107.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.
- Williams J, Ensor C, Gardner S, Smith R, Lodder R. BSN723T Prevents Atherosclerosis and Weight Gain in ApoE Knockout Mice Fed a Western Diet. Webmedcentral. 2015, 6(12).

Reduces Fat Cell Inflammation

- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.

Reduces Fatty Liver

- Yadav D, Kim SJ, Bae MA, Kim JR, Cho KH.The Ability of Different Ketohexoses to Alter Apo-A-I Structure and Function In Vitro and to Induce Hepatosteatosis, Oxidative Stress, and Impaired Plasma Lipid Profile in Hyperlipidemic Zebrafish. Oxid Med Cell Longev. 2018:3124364.

Preserves Kidney Function

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.

Does Not Induce Inflammation or Oxidative Stress

- Collotta D, Lucarini L, Chiazza F, Cento AS, Durante M, Sgambellone S, Chini J, Baratta F, Aragno M, Mastrocola R, Masini E, Collino M. Reduced Susceptibility to Sugar-Induced Metabolic Derangements and Impairments of Myocardial Redox Signaling in Mice Chronically Fed with D-Tagatose when Compared to Fructose. Oxid Med Cell Longev. 2018:5042428. doi: 10.1155/2018/5042428.

Improves Efficacy of Antibiotics

- Levin, G.V. D-tagatose as an anti biofilm agent. U.S. Patent US 7,189,351B2. 2007.

Reduces Infection Risk

- Levin, G.V. D-tagatose as an anti biofilm agent. U.S. Patent US 7,189,351B2. 2007.

Tagatose Increases Satiety

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Increases Levels of Satiety Hormones

- Buemann B, Toubro S, Holst JJ, Rehfeld JF, Bibby BM, Astrup A. D-tagatose, a steroisomer of D-fructose, increases blood uric acid concentration. Metabolism 2000, 49(8):969-76.
- Wu T, Zhao BR, Bound MJ, Checklin HL, Bellon M, Little TJ, Young RL, Jones KL, Horowitz M, Rayner CK. Effects of different sweet preloads on incretin hormone secretion, gastric emptying, and postprandial glycemia in healthy humans. Am J Clin Nutr. 2012, 95(1):78-83.

Slows Gastric Emptying

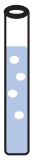
- Wu T, Zhao BR, Bound MJ, Checklin HL, Bellon M, Little TJ, Young RL, Jones KL, Horowitz M, Rayner CK. Effects of different sweet preloads on incretin hormone secretion, gastric emptying, and postprandial glycemia in healthy humans. Am J Clin Nutr. 2012, 95(1):78-83.

Increases "Fullness"

- Wu T, Zhao BR, Bound MJ, Checklin HL, Bellon M, Little TJ, Young RL, Jones KL, Horowitz M, Rayner CK. Effects of different sweet preloads on incretin hormone secretion, gastric emptying, and postprandial glycemia in healthy humans. Am J Clin Nutr. 2012, 95(1):78-83.

Reduces Food Intake

- Buemann B, Toubro S, Raben A, Blundell J, Astrup A. The acute effect of D-tagatose on food intake in human subjects. Br J Nutr. 2000, 84(2):227-31.
- Kruger CL, Whittaker MH, Frankos VH, Trimmer, GW. 90-Day oral toxicity study of D-tagatose in rats. Regulatory toxicology and pharmacology:RTP 1999, 29(2Pt2):S1-10.
- Police SB, Harris JC, Lodder RA, Cassis LA. Effect of diets containing sucrose vs. D-tagatose in hypercholesterolemic mice. Obesity 2009, 17(2):269-75.



Tagatose: Preliminary Findings

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Inhibits Sucrose Transporters

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Reduces Cell Death

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Increases Antioxidant Capacity

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Promotes Fetal Development

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Tagatose Modulates Plant Health

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Pathogen Protection

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Induces Systemic Acquired Resistance

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Does Not Impair Seed Germination

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Does Not Impair Tomato Production

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May Affect Flowering

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Supports Beneficial Endophytes (Plant Bacteria)

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