

General Features

90% as Sweet as Sucrose

- Fujimaru T, Park JH, Lim J. Sensory characteristics and relative sweetness of tagatose and other sweeteners. J Food Sci. 2012, 77(9):S323-8. doi: 10.1111/j.1750-3841.2012.02844.x.

“Clean” Taste

- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.

Sweetness Intensity Increases as Tagatose Concentration Increases

- Fujimaru T, Park JH, Lim J. Sensory characteristics and relative sweetness of tagatose and other sweeteners. J Food Sci. 2012, 77(9):S323-8. doi: 10.1111/j.1750-3841.2012.02844.x.

Sweetness Potency Relative to Sucrose is Consistent Across All Concentrations

- Fujimaru T, Park JH, Lim J. Sensory characteristics and relative sweetness of tagatose and other sweeteners. J Food Sci. 2012, 77(9):S323-8. doi: 10.1111/j.1750-3841.2012.02844.x.

Sweetness Potency is Consistent in Different Food Systems

- Choi J and Chung S. Sweetness potency and sweetness synergism of sweeteners in milk and coffee systems. Food Res. Int. 2015, 74:168–176.

Provides a Sweet, Fruity, Caramel-like Flavor Profile

- Cho IH, Lee S, Jun HR, Roh HJ, Kim YS. Comparison of volatile Maillard reaction products from tagatose and other reducing sugars with amino acids. Food Science and Biotechnology 2010, 19(2): 431–438.
- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.
- Taylor TP, Fasina O, Bell LN. Physical properties and consumer liking of cookies prepared by replacing sucrose with tagatose. J Food Sci. 2008, 73(3):S145-151.

Has More Sweetness, Sweet Aftertaste, Less Bitterness than Erythritol

- Fujimaru T, Park JH, Lim J. Sensory characteristics and relative sweetness of tagatose and other sweeteners. J Food Sci. 2012, 77(9):S323-8. doi: 10.1111/j.1750-3841.2012.02844.x.

Blends Well with High-Intensity Sweeteners and Polysaccharides

- Andersen H and Vigh ML. Synergistic combination of sweeteners including D-tagatose, US Patent US 6432464B1. 1999.
- Bar A. D-tagatose: dossier submitted to UK Advisory Committee on Novel Foods and Processes. 2004.
- Choi J and Chung S. Sweetness potency and sweetness synergism of sweeteners in milk and coffee systems. Food Res. Int. 2015, 74:168–176.
- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.
- Taylor TP, Fasina O, Bell LN. Physical properties and consumer liking of cookies prepared by replacing sucrose with tagatose. J. Food Sci. 2008, 73(3):S145–S151.

Slightly Less Soluble than Sucrose

- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.

Hygroscopicity: Similar to Sucrose, Less than Fructose (<85% RH)

- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.
- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Similar Water-Holding Capacity as Sucrose

- Torrico DD, Tam J, Fuentes S, Viejo CG, Dunshea FR. D-Tagatose as a Sucrose Substitute and Its Effect on the Physico-Chemical Properties and Acceptability of Strawberry-Flavored Yogurt. Foods 2019, 8(7):256.

Reduces Water Activity more than Sucrose

- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.

Anti-Microbial

- Bautista DA, Pegg RB, Shand PJ. Effect of L-glucose and D-tagatose on bacterial growth in media and a cooked cured ham product. J Food Prot. 2000, 63(1):71-7.
- Kang K-M, Park C-S, Lee S-H. Effects of D-Tagatose on the Growth of Intestinal Microflora and the Fermentation of Yogurt. Journal of the Korean Society of Food Science and Nutrition 2013, 42(3):348-354.
- Levin, G.V. D-tagatose as an anti biofilm agent. U.S. Patent US 7,189,351B2. 2007.

Modulates Viscosity

- Bar A. D-tagatose: dossier submitted to UK Advisory Committee on Novel Foods and Processes. 2004.
- Kang K-M, Park C-S, Lee S-H. Effects of D-Tagatose on the Growth of Intestinal Microflora and the Fermentation of Yogurt. Journal of the Korean Society of Food Science and Nutrition 2013, 42(3):348-354.
- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.
- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Reduces Stickiness

- Bar A. D-tagatose: dossier submitted to UK Advisory Committee on Novel Foods and Processes. 2004.
- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.
- Taylor TP, Fasina O, Bell LN. Physical properties and consumer liking of cookies prepared by replacing sucrose with tagatose. J. Food Sci. 2008, 73(3):S145-S151.

Browning Agent

- Baek SH, Kwon SY, Lee HG, Baek, HH. Maillard Browning Reaction of D-Psicose as Affected by Reaction Factors. Food Science and Biotechnology 2008, 17(6):1349-1351.
- Kwon SY, Baek HY. Effects of temperature, pH, organic acids, and sulfites on tagatose browning in solutions during processing and storage. Food Science and Biotechnology 2014, 23(3): 677-684.
- O'Charoen S, Hayakawa S, Matsumoto Y, Ogawa M. Effect of D-psicose used as sucrose replacer on the characteristics of meringue. J Food Sci. 2014, 79(12):E2463-9. doi: 10.1111/1750-3841.12699.
- Ryu S-Y, Roh M-J, Noh B-S, Kim S-Y, Oh D-K, Lee W-J, Yoon J-R, Kim S-S. Effects of Temperature and pH on the Non-enzymatic Browning Reaction of Tagatose-Glycine Model System. Food Science and Biotechnology 2003, 12(6):675-679.
- Ryu S-Y, Roh M-J, Noh B-S, Kim S-Y, Oh D-K, Lee W-J, Yoon J-R, Kim S-S. Effects of Various Sugars Including Tagatose and their Molar Concentrations on the Maillard Browning Reaction. Korean Journal of Food Science and Technology 2003, 35(5):898-904.
- Yadav D, Kim SJ, Bae MA, Kim JR, Cho KH. The Ability of Different Ketohehexoses 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.

Solid: pH Stable

- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.

Liquid: Most Stable in an Unheated, Acidic Environment Buffered by Citrate

- Dobbs CM, Bell LN. Storage Stability of Tagatose in Buffer Solutions of Various Compositions. Food Research International 2010, 43(1):382-386.

Lower Melting Point than Sucrose

- Roh H-J, Kim S-Y, Kim S-S, Oh D-K, Han K-Y, Noh B-S. Physicochemical Properties of a Low Calorie Sweetener, Tagatose. Korean Journal of Food Science and Technology 1999, 31(1):24-29.

Lower Glass Transition Temperature than Sucrose

- Simperler A et al., Glass Transition Temperature of Glucose, Sucrose, and Trehalose: An Experimental and in Silico Study. J. Phys. Chem. B 2006, 110(39):19678-84.
- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Readily Crystallizes

- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Depresses Freezing Point

- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Application Specific Features

Milk: Mixture with Either Sucralose or Stevia is as Sweet as Sucrose; Tagatose-Stevia Sweeter than Erythritol-Stevia

- Choi JH, Chung SJ. Sweetness potency and sweetness synergism of sweeteners in milk and coffee systems. Food Res Int. 2015, 74:168-176. doi: 10.1016/j.foodres.2015.04.044.

Chocolate Milk: Tagatose Improves Mouth-feel, Sweetness, Toffee flavor and Sweet Aftertaste and Reduces Bitterness of Acesulfame K

- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Milk, Diet Lemonade: Stable.1

- Bell LN, Luecke KJ. Tagatose stability in milk and diet lemonade. J Food Sci. 2012, 77(1):H36-H39. doi: 10.1111/j.1750-3841.2011.02456.x
- Luecke KJ, Bell LN. Thermal stability of tagatose in solution. J Food Sci. 2010, 75(4):C346-51. doi: 10.1111/j.1750-3841.2010.01601.x.

Yogurt: Stable, Retains Probiotics, Acceptable to Consumers

- Kang K-M, Park C-S, Lee S-H. Effects of D-Tagatose on the Growth of Intestinal Microflora and the Fermentation of Yogurt. Journal of the Korean Society of Food Science and Nutrition 2013, 42(3):348-354.
- Torrico DD, Tam J, Fuentes S, Viejo CG, Dunshea FR. D-Tagatose as a Sucrose Substitute and Its Effect on the Physico-Chemical Properties and Acceptability of Strawberry-Flavored Yogurt. Foods 2019, 8(7):256.

Meringue: Increases Antioxidant Capacity

- O'Charoen S, Hayakawa S, Matsumoto Y, Ogawa M. J Food Sci. Effect of D-psicose used as sucrose replacer on the characteristics of meringue. 2014, 79(12):E2463-9. doi: 10.1111/1750-3841.12699.

Citrus-Fruit Jelly: Similar Moisture Content, pH, Stability as Sucrose; Increases Antioxidant Capacity

- Rubio-Arreaez S, Capella JV, Castelló ML, Ortolá MD. Physicochemical characteristics of citrus jelly with non cariogenic and functional sweeteners. J Food Sci Technol. 2016, 53(10):3642-3650. doi: 10.1007/s13197-016-2319-4.

Citrus-Fruit Jelly: Mixture with Isomaltose Deemed Most Likely For Consumers to Purchase

- Rubio-Arreaez S, Capella JV, Castelló ML, Ortolá MD. Physicochemical characteristics of citrus jelly with non cariogenic and functional sweeteners. J Food Sci Technol. 2016, 53(10):3642-3650. doi: 10.1007/s13197-016-2319-4.

Chocolate: Does not Affect Viscosity or Melting Temperature, but Softens

- Roh H-J, Kim S-Y, Noh B-S, Kim S-S, Oh D-K. Application of a Low Calorie Sweetener, Tagatose, to Chocolate Product. Korean Journal of Food Science and Technology 1998, 30(1):237-240.

Chocolate: Fuller, Creamier Mouthfeel than Fructose

- Skytte UP. "Tagatose," in Sweeteners and Sugar Alternatives in Food Technology, H. Mitchell, Ed. Blackwell Publishing Ltd, 2006.

Dark Chocolate: Similar Taste, Texture, Positive Emotions Elicited as Sucrose

- Lagast S, De Steur H, Schouteten JJ, Gellynck X. A comparison of two low-calorie sweeteners and sugar in dark chocolate on sensory attributes and emotional conceptualisations. Int J Food Sci Nutr. 2017, 14:1-14. doi: 10.1080/09637486.2017.1362689.

Cookie Dough: Similar Rheology as Sucrose, but with Reduced Baking Time

- Taylor TP, Fasina O, Bell LN. Physical properties and consumer liking of cookies prepared by replacing sucrose with tagatose. J Food Sci. 2008, 73(3):S145-151.

Cookies: Appearance Preferred Over Sucrose Cookies

- Taylor TP, Fasina O, Bell LN. Physical properties and consumer liking of cookies prepared by replacing sucrose with tagatose. J Food Sci. 2008, 73(3):S145-151.

Cookies, Cupcakes, Muffins: Consumer Preference for Tagatose-Sucrose Mixture Is No Different than Sucrose Only

- Armstrong LM, Luecke KJ, Bell LN. Consumer evaluation of bakery product flavour as affected by incorporating the prebiotic tagatose. International Journal of Food Science and Technology 2009 44(4):815-819.
- Taylor TP, Fasina O, Bell LN. Physical properties and consumer liking of cookies prepared by replacing sucrose with tagatose. J Food Sci. 2008, 73(3):S145-151.

Hard Candy: Improved Anti-Microbial

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

Chewing Gum: Agreeable Taste, Improved Anti-Microbial

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

Meal Replacements: Increases Probiotics

- Bar A. D-tagatose: dossier submitted to UK Advisory Committee on Novel Foods and Processes. 2004.

Toothpaste: Stable, Improves Taste and Mouthfeel

- Lu Y. Humectancies of d-tagatose and d-sorbitol. Int J Cosmet Sci. 2001 Jun;23(3):175-81. doi: 10.1046/j.1467-2494.2001.00084.x.