2,5-Deoxyfructosazine (hydrochloride)
Item No. 18662

CAS Registry No.: 17460-13-8
Formal Name: (1R,2S,3R) 1-[5-[(2S,3R)-2,3,4-trihydroxybutyl]-2-pyrazinyl]-1,2,3,4-butane tetrol, dihydrochloride
Synonym: NSC 270912
MF: C12H20N2O7 • 2HCl
FW: 377.2
Purity: ≥98%
Stability: ≥ 2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max} = 274 nm

Laboratory Procedures

For long term storage, we suggest that 2,5-deoxyfructosazine (hydrochloride) be stored as supplied at -20°C. It should be stable for at least two years.

2,5-Deoxyfructosazine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2,5-deoxyfructosazine (hydrochloride) in the solvent of choice. 2,5-Deoxyfructosazine (hydrochloride) is soluble in the organic solvent DMSO, which should be purged with an inert gas. The solubility of 2,5-deoxyfructosazine (hydrochloride) in DMSO is approximately 3 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2,5-deoxyfructosazine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2,5-deoxyfructosazine (hydrochloride) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2,5-Deoxyfructosazine is a pyrazine derivative that can be found in cured tobacco and is used as a flavoring agent in the food and tobacco industry.\(^1\),\(^2\) Pyrazines, including 2,5-deoxyfructosazine, can be produced either by pyrolytic decomposition of natural compounds or by the reaction of sugars with alcoholic ammonia.\(^2\) 2,5-Deoxyfructosazine is also formed by the breakdown of D-glucosamine at neutral pH.\(^3,4\) Like glucosamine, 2,5-deoxyfructosazine has DNA strand breakage activity and strongly inhibits IL-2 production by Jurkat cells stimulated with phytohemagglutinin (IC\textsubscript{50} = ~1.25 mM).\(^3,5\)

References