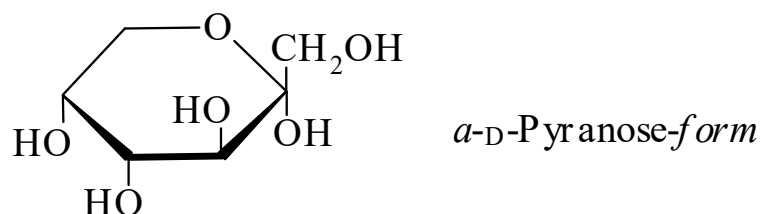




>>Entry Name: Fructose, 9CI, 8CI

ENTRY UNDER REVIEW

Synonym(s): Levulose. *arabino*-Hexulose. Fruit sugar. Laevulose. α -Acrose



CAS Registry Number: 30237-26-4

Related CAS Registry Numbers(s): 8013-17-0 25339-99-5 27195-16-0 41579-20-8 41612-84-4 41847-51-2 92691-79-7 92691-80-0

Molecular Formula: $C_6H_{12}O_6$

Molecular Weight: 180.157

Accurate Mass: 180.06339

Percentage Composition: C 40.00%; H 6.71%; O 53.28%

General Statement: α -Acrose was apparently an old synonym for the racemate

>>Variant: D-form

CAS Registry Number: 57-48-7

Molecular Formula: $C_6H_{12}O_6$

Molecular Weight: 180.157

Accurate Mass: 180.06339

Percentage Composition: C 40.00%; H 6.71%; O 53.28%

General Statement: An aq. soln. at 30°C contains 2% α -pyr, 70% β -pyr, 5% α -fur, 23% β -fur, and 0.7% ketone

Biological Source: Occurs in honey, a large number of fruits, particularly apples and tomatoes, and detected in bull and human semen. Present in polymeric form in the inulins, the energy reserve polysaccharides of many plants, e.g. dahlia and Jerusalem artichoke tubers, and in Levan [BVJ72-P](#) which is found in grasses. Sucrose consists of fructofuranose glycosidically linked to the anomeric centre of D-glucopyranose. Prep'd. on large scale from invert sugar (hydrol. prod. of sucrose with dil. acid) or hydrolysed natural inulins. Fructose can be separated from glucose by precipitation of its Ca salt complex. Inulin from dandelion roots has also been used as a source

Use/Importance: Fluid and nutrient replenisher, nutritive sweetener

Melting Point: Mp 102-104°

Optical Rotation: $[\alpha]_D -133.5$. $[\alpha]_D -92.4$ (c, 4 in H_2O)

pKa Value: pK_{a1} 12.03 (25°)

Other Data: Sweetness =0.84 x sucrose (sometimes stated to be sweeter than sucrose)

Hazard & Toxicity: **Gastrointestinal effects by ingestion (large dose)**

Aldrich: 14092-9

Fluka: 47740

Sigma: F2543

Supelco: R42-2110

>>Derivative: *p*-Nitrophenylhydrazone

Melting Point: Mp 180-181°

>>Derivative: Anilide

Melting Point: Mp 147°

Optical Rotation: $[\alpha]_D -194$ (EtOH)

>>Derivative: 1,3,4,5,6-Penta-Ac

Synonym(s): 1,3,4,5,6-Penta-*O*-acetyl-D-fructose

CAS Registry Number: 6341-07-7

Molecular Formula: $C_{16}H_{22}O_{11}$

Molecular Weight: 390.343

Accurate Mass: 390.116215

Percentage Composition: C 49.23%; H 5.68%; O 45.09%

Melting Point: Mp 68-69°

Optical Rotation: $[\alpha]_D +34.8$ ($CHCl_3$)