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Product Information

Ouabain octahydrate

Product Numbers **O3125** and **O5754**

Store at Room Temperature

CAS #: 11018-89-6

Synonyms: G-Strophanthin, Acocantherin, Gratus
Strophanthin, Gratibain, Astrobain, Strodival,
Strophoperm, Purostrophan

Product Description

Appearance: White to white with a yellow cast powder

Molecular formula: $C_{29}H_{44}O_{12} \cdot 8H_2O$

Molecular weight: 728.77

Melting point: 190 °C¹ (anhydrous)

Sigma observed melting point between 182-205 °C

$E^{220nm} = 15.5$ (in water)²

$[\alpha_D]_{25} = -31$ to -32.5 (c = 1% in water)³

Ouabain, a cardiac glycoside, is derived from the seeds of *Strophanthus gratus*. It is a classical Na^+K^+ pump inhibitor. Ouabain inhibits Na^+ , K^+ -ATPase, thus blocking the active efflux of Na^+ ; reuptake of K^+ , and repolarization of neurons and muscle cells.⁶ It has been reported that at least 80-100 mM of ouabain required for maximum inhibition and approximately 20 mM for half-maximum inhibition of ATP hydrolysis.⁷

Ouabain binding has been used as a marker in studies of the regulation of Na^+ , K^+ -ATPase levels in brain by adrenergic⁸ and other neurotransmitter systems. Since ouabain reduces the transmembrane sodium gradient and releases monoamine neurotransmitters from neurons, it has been used to study the effect of acute and chronic administration of pharmacological agents on the metabolism and release of monoamine neurotransmitters.⁹

Ouabain is also used in tissue culture as a selective agent in the production of hybrid cells. The recommended working concentration is 10 μM .^{10,11,12}

Preparation Instructions

Sigma tests the solubility of ouabain in hot water. At 50 mg/mL a clear colorless to slightly hazy faint yellow solution is obtained. It is also soluble in 1 in 100 parts of ethanol and 1 in 30 parts of methanol. It is practically insoluble in chloroform and ether.⁴

Storage/Stability

Ouabain is recommended to be stored at room temperature and protected from light. Based on lots reassayed, if properly stored, it will have a shelf-life of up to 5 years.

Ouabain solutions should be protected from light and may be sterilized by autoclaving and filtration.⁵

References

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