



K559

Synonyms: 3-O-[2-amino-4-[(carboxyiminomethyl)amino]-2,3,4,6-tetra-deoxy- α -D-arabino-hexopyranosyl]-D-chiro-inositol Hydrochloride Monohydrate

Formula: $C_{14}H_{25}N_3O_9 \cdot HCl \cdot H_2O$

$\bullet \text{HCl} \cdot \text{H}_2\text{O}$

Form: Powder

Appearance: Cream to Tan Powder

Application: Plant Tissue Culture Antibiotic Antimycotic

Solubility: Soluble in Water

Storage Temp: 2 to 6 °C

Kasugamycin is an aminoglycoside antibiotic derived from *Streptomyces kasugaensis*. It has similar mode of action to that of streptomycin. In the ribosomal subunit, kasugamycin inhibits polypeptide synthesis by interfering with the aminoacyl-sRNA from binding to the messenger-ribosome complex¹; however, because kasugamycin does not have the deoxystreptamine moiety, it does not exhibit miscoding activity like other aminoglycoside antibiotics.² Kasugamycin is especially effective against *Pseudomonas aeruginosa* and *Piricularia oryzae*.¹⁻³

Minimum inhibitory concentration (MIC) of kasugamycin has been reported for many bacteria. MIC for *Pseudomonas* sp. is 64 to 500 µg/mL, *Staphylococcus aureus* is greater than 500 µg/mL, and *Escherichia coli* is 500 µg/mL.⁴

Please Note: It is the sole responsibility of the purchaser to determine the appropriateness of this product for the specific plants that are being cultured and applications that are being used.

1. Tanaka, Nobuo, Hideyo Yamaguchi, and Hamao Umezawa. 1966. Mechanism of kasugamycin action on polypeptide synthesis. *Journal of Biochemistry*. Vol. 60(4). Pp. 429-434.
2. Masukawa, Hiroshi, Nobuo Tanaka, and Hamao Umezawa. 1968. Inhibition by kasugamycin of protein synthesis in *Piricularia oryzae*. *Journal of Antibiotics*. Vol. 2(1). Pp. 73-74.
3. Barbara S Schuwirth, J Michael Day, Cathy W Hau, Gary R Janssen, Albert E Dahlberg, Jamie H Doudna Cate, and Antón Vila-Sanjurjo. 2006. Structural analysis of kasugamycin inhibition of translation. *Nat. Struct. Mol. Biol.* Vol.13(10). Pp. 879-886.
4. Levitan, Alexandar A. 1967. *In vitro* antibacterial activity of kasugamycin. *Applied Microbiology*. Vol 15(4). Pp. 750-753.

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