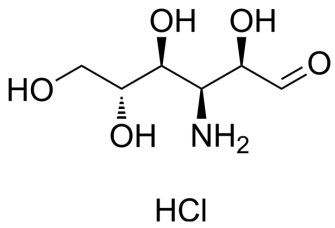
Kanosamine hydrochloride

Cat. No.:	HY-112176
CAS No.:	57649-10-2
Molecular Formula:	$C_6H_{14}ClNO_5$
Molecular Weight:	215.63
Target:	Fungal; Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	-20°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



BIOLOGICAL ACTIVITY

Description	Kanosamine hydrochloride is an antibiotic which inhibits the growth of plant-pathogenic oomycetes, certain fungi and a few bacterial species. Kanosamine inhibits Phytophthora medicaginis M2913 and Aphanomyces euteiches WI-98 with MICs of 25 and 60 μg/mL, respectively.
IC_{50} & Target	MIC: 25 μg/mL (Phytophthora medicaginis M2913), 60 μg/mL (Aphanomyces euteiches WI-98)[1]
In Vitro	Kanosamine is highly inhibitory to growth of plant-pathogenic oomycetes. Among the strains tested, Phytophthora medicaginis M2913 is the most sensitive to kanosamine, whereas Pythium aphanidermatum Pa138 and Pythium torulosum A25a are less sensitive, and Aphanomyces euteiches WI-98 shows an intermediate level of sensitivity. The oomycetes are more sensitive to kanosamine at pH 7.0 than at pH 5.6. Kanosamine inhibits few bacterial species. Kanosamine is moderately inhibitory to certain fungi. All of the fungi and oomycetes inhibited by kanosamine are pathogens of plants. Maximum accumulation of kanosamine in B. cereus UW85 culture supernatants coincided with sporulation. Kanosamine accumulation is enhanced by the addition of ferric iron and suppressed by addition of phosphate to rich medium. Kanosamine accumulation is also enhanced more than 300% by the addition of alfalfa seedling exudate to minimal medium [1]. The antibiotic kanosamine inhibits growth of Saccharomyces cerevisiae and a range of human pathogenic fungi, including Candida albicans. The action of kanosamine on C. albicans cells results in profound morphological changes, inhibition of septum formation and cell agglutination[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	MICs are determined by a serial dilution microtitrer plates method in Yeast Nitrogen Base medium containing 1% glucose or glycerol as a carbon source. Wells containing serially diluted kanosamine and control wells are inoculated with 10^5 cells /mL of an overnight culture of fungal cells and incubated for 24 h at 30°C. MIC is defined as the lowest antifungal agent concentration preventing visible growth. Alternatively, MICs are determined in RPMI 1640 medium buffered with 3-[N-morpholino]propanesulphonic acid (MOPS) to pH 7, under conditions recommended by NCCLS. In all cases, reproducible sharp end points are obtained and trailing effects are not observed[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Microbiome. 2019 Mar 20;7(1):43.
- Laurea Magistrale in Biomedical Engineering, Politecnico di Milano. 2019 Jun.

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REFERENCES

[1]. Milner JL, et al. Production of kanosamine by Bacillus cereus UW85. Appl Environ Microbiol. 1996 Aug;62(8):3061-5.

[2]. Janiak AM, et al. Mechanism of antifungal action of kanosamine. Med Mycol. 2001 Oct;39(5):401-8.

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