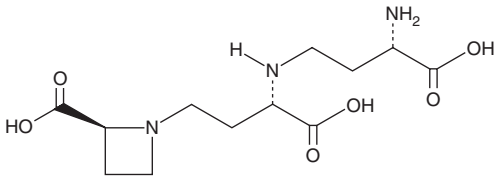
PRODUCT INFORMATION

Nicotianamine

Item No. 19958

CAS Registry No.: 34441-14-0
Formal Name: αS-[[(3S)-3-amino-3-carboxypropyl]amino]-2S-carboxy-1-azetidinebutanoic acid
MF: $C_{12}H_{21}N_3O_6$
FW: 303.3
Purity: ≥95%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Nicotianamine is supplied as a solid. A stock solution may be made by dissolving the nicotianamine in the solvent of choice, which should be purged with an inert gas. Nicotianamine is slightly soluble in methanol. Nicotianamine is also slightly soluble in water. We do not recommend storing the aqueous solution for more than one day.

Description

Nicotianamine is a metal chelator and phytosiderophore precursor produced in plants that has a role in the uptake, translocation, and intracellular transport of metals.[1] Treating lettuce (*L. sativa*) with a $Cu(OH)_2$-based pesticide raises nicotianamine levels 12- to 27-fold compared to non-pesticide treated plants.[2] Nicotianamine also inhibits rabbit angiotensin-coverting enzyme (ACE) (IC_{50} = 0.26 µM) and human recombinant ACE2 (IC_{50} = 84 nM).[3,4]

References

1. Curie, C., Cassin, G., Couch, D., *et al.* Metal movement within the plant: Contribution of nicotianamine and yellow stripe 1-like transporters. *Ann. Bot.* **103(1)**, 1-11 (2009).
2. Zhao, L., Ortiz, C., Adeleye, A.S., *et al.* Metabolomics to detect response of lettuce (*Lactuca sativa*) to $Cu(OH)_2$ nanopesticides: Oxidative stress response and detoxification mechanisms. *Environ. Sci. Technol.* **50(17)**, 9697-9707 (2016).
3. Kinoshita, E., Yamakoshi. J., and Kikuchi, M. Purification and identification of an angiotensin I-converting enzyme inhibitor from soy sauce. *Biosci. Biotech. Biochem.* **57(7)**, 1107-1110 (1993).
4. Takahashi, S., Yoshiya, T., Yoshizawa-Kumagaye, K., *et al.* Nicotianamine is a novel angiotensin-converting enzyme 2 inhibitor in soy-bean. *Biomed. Res. (Tokyo)* **36(3)**, 219-224 (2015).

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