Specification

D-Cycloserine *BioChemica* A1943

Physical Description:	Solid
Product Code:	A1943
Product Name:	D-Cycloserine *BioChemica*
Specifications:	Assay: min. 95 % α20°C/D; 5 %, 2 N NaOH: +108° - +114° Solubility (10 %; H_2O): clear, colorless pH (10 %; H_2O; 20°C): 5.5 - 6.5 Residue on ignition: max. 0.5 % Loss on drying: max. 1 %
WGK:	1
Storage:	-20°C
Shipment:	ambient temperature
P Phrases:	P261 P281
Molecular Formula:	$C_3H_6N_2O_2$
M:	102.10 g/mol
CAS:	68-41-7
EINECS:	200-688-4
CS:	29419000

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Specification

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Comment

D-Cycloserine was isolated from different *Streptomyces* species. It is a D-4-Amino-3-isoxazolidinone and acts competitive, antagonistic against D-Alanine. Cycloserine is more active against gram positive than gram negative bacteria, besides several Spirochaetae, Rickettsia, different Protozoa and Chlamydiaceae. Fungi are resistant. It is active (bacteriostatic) against extra- and intracellular located bacteria. The optimum pH value is in the range of pH 6.4 - 7.4. As a competitive antagonist of D-Alanine, one component of bacterial cell walls, several enzymes are inhibited. Inhibition of Alanine Racemase and Alanine Synthetase results in the accumulation of an incomplete cell wall component (nucleomucopeptide) and thereby damage of the cell wall, since these enzymes cannot process the component anymore. Several Transaminases are target of Cycloserine as well.**Solubility and Stability**: D-Cycloserine is readily water-soluble (100 mg/ml), slightly soluble in methanol and almost insoluble in organic solvents. It is more stable at alkaline pH (pH 8 - 10), than in the neutral or acidic pH range. At pH 7 and 37°C, it will be inactivated by 25 % after 7 days and by 38 % after 14 days. Sodium carbonate-buffered, aqueous solutions (pH 10) are stable for approximately one week at +4°C (The Merck Index, 13th Edition (2001), Monography 2780). According to ref. 1, stock solutions may be prepared at a concentration of 10 mg/ml in 0.1 M sodium phosphate buffer pH 8. They should be made immediately before use (1). The working concentration is 200 µg/ml.

Bibliography

(1)Ausubel, F.A., Brent, R., Kingston, R.E., Moore, D.D., Seidman, J.G., Smith, J.A. & Struhl, K. (eds.) 2001. *Currrent Protocols in Molecular Biology*. Supplement 59, Page 1.4.2. John Wiley & Sons, New York.

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