


Specification



Polymyxin B sulfate *BioChemica*

A0890

Synonym	Aerosporin
Formula	$C_{55}H_{96}N_{16}O_{13} \cdot 2H_2SO_4$
M	1385.63 g/mol
CAS-No.:	1405-20-5
HS-No.:	29419000
EC-No.:	215-774-7
Storage:	RT protected from light
LGK:	10 - 13
R:	22
	harmful
Specification	
Activity	~7000 I.U./mg
pH (2 %; H₂O)	5.0 - 7.0
Sulfated ash	max. 1 %
Loss on drying	max. 5 %
Sulfate	max. 17 %
Literature	
<p>(1) Storm, D.R. <i>et al.</i> (1977) <i>Ann. Rev. Biochem.</i> 46, 723-763 Review article: Polymyxin and related peptide antibiotics.</p> <p>(2) Schächtele, C. <i>et al.</i> (1988) <i>Biochem. Biophys. Res. Com.</i> 151, 542-547 Stimulus-dependent inhibition of platelet aggregation by PKC-inhibitors.</p> <p>(3) Raynor, R.L. <i>et al.</i> (1991) <i>J. Biol. Chem.</i> 266, 2753-2758 Membrane interaction of amphiphil polypeptides: Mastoparan, Melittin, Polymyxin B.</p> <p>(4) Lucas, M. <i>et al.</i> (1994) <i>Biochem. Pharmacol.</i> 47, 667-672 Protein kinase C activation increases the survival of mature lymphocytes.</p> <p>(5) Schupp, J.M. <i>et al.</i> (1995) <i>BioTechniques</i> 19, 18-20 Reagent for the permeabilisation of bacteria for enzyme assays.</p>	

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Comment

Polymyxin B was isolated from *Bacillus polymyxa* and is a component of the polymyxin-complex, consisting of polymyxin A-E and M. Just polymyxin B and E are of practical importance. Polymyxin B is a basic, cyclic octa- (or hepta-) peptide with a peptide side chain. It permeabilizes the bacterial cytoplasmic membrane by interaction with phospholipid components. The efflux of essential components explains the bactericidal activity against non-proliferating bacteria. The bactericidal activity will be reduced by divalent ions (Fe^{2+} , Mn^{2+} , Ca^{2+} , Mg^{2+}), non-saturated fatty acids and polyphosphates. Polymyxin B is only active against proliferating and non-proliferating gram negative bacteria.

Stability: It is a faint yellow powder, stable and resistant against heat (in solutions at pH values from 2 - 7, especially 3 -5). It is inactivated in strong acidic or alkaline solutions. An aqueous solution can be stored at +4°C for approx. 2 months (5). Polymyxin may be dissolved in water or methanol (< 25 mg/ml). It is of low solubility in organic solvents.