

Certificate of Analysis for NR-2499

Bacillus licheniformis, Strain NRS 712

Catalog No. NR-2499

(Derived from ATCC® 9945™)

Bacillus licheniformis is a Gram-positive, spore-forming, facultative **Product Description:** anaerobe that is widely distributed as a saprophytic organism in the environment.

Lot¹: 4874335 Manufacturing Date: 16NOV2005

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis	Consistent with ATCC [®] 9945™	Consistent with ATCC [®] 9945™
Cellular morphology	Gram-positive rod	Gram-positive rod
Colony morphology ²	Report results	Round, smooth
Sporulation	Positive	Positive
Anaerobic Growth	Positive	Positive
Motility	Motile	Motile
β-hemolysis	Non-hemolytic	Non-hemolytic
Capsule (India ink staining)	Positive	Positive
Tenacious	Report results	Negative
Analytical profile index (API [®] 50 CHB)	Consistent with Bacillus	Consistent with Bacillus
	licheniformis	licheniformis
Biochemical tests		
Nitrate	Positive	Positive
Arginine dihydrolase	Positive	Positive
Glycerol	Positive	Positive
Salicin	Positive	Positive
Glycogen	Positive	Positive
Trehalose	Positive	Positive
Nutrient agar with 0.7% sodium bicarbonate	Growth	Growth
FAME analysis	Consistent with Bacillus	Consistent with Bacillus
•	licheniformis	licheniformis
Genotypic Analysis		
Sequencing of 16S ribosomal RNA gene (~ 735 bp)	Consistent with Bacillus	Consistent with Bacillus
	licheniformis	licheniformis ³
Viability (post-vialing) ²	Growth	Growth

NR-2499 was produced by propagation of seed stock (BEI Resources NRS-2499) in Nutrient Broth for 24 hours at 37°C and aerobic atmosphere. NRS-2499 was produced by propagation of ATCC® 9945™ (Lot 3467258) in Nutrient Broth for 24 hours at 37°C and aerobic atmosphere.

Signature: Signature on File **Date:** 02 OCT 2007

Title: Technical Manager, BEI Authentication or designee

ATCC®, on behalf of BEI Resources, hereby represents and warrants that the material provided under this certificate has been subjected by the contractor to the tests and procedures specified and that the results described, along with any other data provided in this certificate, are true and accurate to the best of ATCC®'s knowledge.

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²24 hours at 37°C and aerobic atmosphere on Nutrient Agar.

³Also consistent with other *Bacillus* species.