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SUPPORTING INFECTIOUS DISEASE RESEARCH

Certificate of Analysis for NR-52265

Geobacillus stearothermophilus, Strain NCA 1518

Catalog No. NR-52265
(Derived from ATCC® 7953™)

Product Description:
Geobacillus stearothermophilus (G. stearothermophilus), strain NCA 1518 was isolated from under-processed canned food at the National Canners Association, Washington, D.C., USA. NR-52265 lot 70033118 was produced by inoculation of the deposited material into Nutrient broth and grown for 1 day at 55°C in an aerobic atmosphere. Broth inoculum was added to Nutrient agar kolles, which were grown for 1 day at 55°C in an aerobic atmosphere to produce this lot.

Lot: 70033118 **Manufacturing Date: 26FEB2020**

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis		
Cellular morphology	Report results	Gram-variable rods[1]
Colony morphologies[2] 1 day at 55°C in an aerobic atmosphere on Nutrient agar	Report results	Colony type 1: Circular, low convex, entire, smooth and light cream (Figure 1) Colony type 2: Circular, convex, entire, smooth and dark cream (Figure 1)
Hemolysis	Report results	Non-hemolytic
Motility (wet mount)	Report results	Motile
Biochemical tests		
Catalase	Report results	Negative
VITEK® MS (MALDI-TOF)	*G. stearothermophilus*	*G. stearothermophilus* (99.9%)
Genotypic Analysis		
Sequencing of 16S ribosomal RNA gene (~ 1420 base pairs)	≥ 99% sequence identity to *G. stearothermophilus*, strain NCA 1518 (GenBank: JALS01000027.1)	99.9% sequence identity to *G. stearothermophilus*, strain NCA 1518 (GenBank: JALS01000027.1)[3]
Purity (post-freeze)		
7 days at 55°C in an aerobic atmosphere on Nutrient agar	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
7 days at 37°C in an aerobic atmosphere with 5% CO_2 on Nutrient agar	No growth	No growth
Viability (post-freeze) 1 day at 55°C in an aerobic atmosphere on Nutrient agar	Growth	Growth

[1]*G. stearothermophilus* has a Gram-positive cell wall but may stain Gram-variable or Gram-negative. For more information, please refer to Nazina, T. N., et al. "Taxonomic Study of Aerobic Thermophilic Bacilli: Descriptions of *Geobacillus subterraneus* gen. nov., sp. nov. and *Geobacillus uzenensis* sp. nov. from Petroleum Reservoirs and Transfer of *Bacillus stearothermophilus*, *Bacillus thermocatenulatus*, *Bacillus thermoleovorans*, *Bacillus kaustophilus*, *Bacillus thermoglucosidasius* and *Bacillus thermodenitrificans* to *Geobacillus* as the New Combinations *G. stearothermophilus*, *G. thermocatenulatus*, *G. thermoleovorans*, *G. kaustophilus*, *G. thermoglucosidasius* and *G. thermodenitrificans*." Int. J. Syst. Evol. Microbiol. 51 (2001): 433-446. PubMed: 11321089.

[2]Two colony types were observed. Plating of the individual colony types showed that they did not revert to the mixed colony type. VITEK® MS (MALDI-TOF) analysis identified the cells from both colony types as *G. stearothermophilus*. The 16S ribosomal RNA gene of each colony type was sequenced and found to have 100% sequence identity to the other colony type and 99.9% sequence identity to *G. stearothermophilus*, strain NCA 1518 (GenBank: JALS01000027.1).

[3]Also consistent with other *Geobacillus* species

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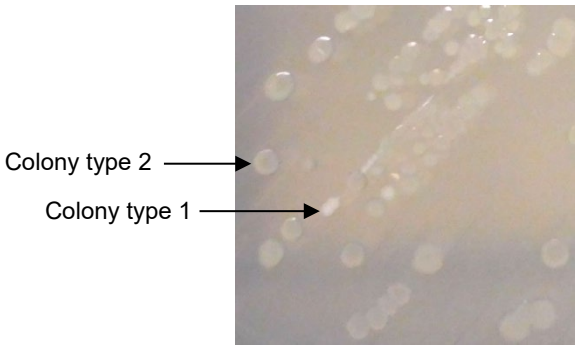
Figure 1: Colony Morphology



/Heather Couch/
Heather Couch 17 JUN 2020
Program Manager or designee, ATCC Federal Solutions

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