



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
INSTITUT PERTANIAN BOGOR
UNIT LABORATORIUM JASA PENGUJIAN, KALIBRASI DAN SERTIFIKASI

Sertifikat Akreditasi KAN No. LP-156-IDN ; LK-220-IDN ; LSP-030-IDN ; LSHACCP-009-IDN ; LSSMKP-009-IDN
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Certificate No. : LT-10-20-0347
Lab. No. : BM/IV/20/0966-0967
Customer : PT TEVO INDONESIA
Address : Raya Nginden 1 Surabaya 60118, Jawa Timur
Sample Matrix : Liquid Material
Test for : Quantitative Suspension Test for the Evaluation of Bactericidal Activity
Received Date : 17-04-2020
Issued Date : 08-05-2020

Head of Laboratory

Dr. Mohammad Khoib, M.Si
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Certificate No.	: LT-10-20-0347	Received Date	: 17-04-2020
Laboratory No.	: BM/IV/20/0966	Finished Date	: 08-05-2020
Sample Matrix	: Liquid Material		
Sample Id	: Utilize		
Packaging	: Spray Bottle		

Microorganism Strains	Test Bacterial Suspension	Result at concentration 80 % (v/v)				Method*
		Na	< 140	% R	> 99.9991 %	
Escherichia coli (ATCC 10536)	N = 1.58 x 10 ⁸ No = 1.58 x 10 ⁷ Log No = 7.2	Na	< 140	% R	> 99.9991 %	EN 1276 : 2009 (dilution-neutralization method)
Staphylococcus aureus (ATCC 6538)	N = 1.59 x 10 ⁸ No = 1.59 x 10 ⁷ Log No = 7.2	Log Na	< 2.15	Log R	> 5.05	
Pseudomonas aeruginosa (ATCC 15442)	N = 1.62 x 10 ⁸ No = 1.62 x 10 ⁷ Log No = 7.21	Na	< 140	% R	> 99.9991 %	
Enterococcus hirae (ATCC 10541)	N = 2.25 x 10 ⁸ No = 2.25 x 10 ⁷ Log No = 7.35	Log Na	< 2.15	Log R	> 5.2	

REMARKS

Neutralizer : Peptone from meat 10 g/L, Meat extract 5 g/L, NaCl 5 g/L, Soy lecithin 1 g/L and Polysorbate 80 20 g/L
 Interfering Substances : 0.3 g/L bovine albumin (Clean Conditions)
 Contact Time : 1 minute Test Temperature : 20°C Incubation Temperature : 36°C
 Product concentration resulting in a 10⁵ or greater reduction in the number of viable cells are bactericidal (log R ≥ 5 or % R ≥ 99.9999 %)


N = number of cfu/ml of the test bacterial suspension
 No = $\frac{N}{10}$
 Log No = logarithmic No
 Na = number of cfu/ml in the test mix
 R = reduction in number of viable cells
 Log R = logarithmic reduction in number of viable cells (log No – log Na)

Laboratory is not responsible for the sampling process

Conclusion :

The product **Utilize is bactericidal** on the reference strain: Escherichia coli (ATCC 10536), Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa (ATCC 15442) and Enterococcus hirae (ATCC 10541) at the concentration of 80% (v/v), in accordance with European Standard EN 1276 : 2009, for a contact time of 1 minute at 20°C in the presence of a final concentration of 0.3 g/L of bovine albumin during the test (clean conditions).

May 08, 2020
 Head of Laboratory


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Certificate No. : LT-10-20-0347
 Laboratory No. : BM/IV/20/09967
 Sample Matrix : Liquid Material
 Sample Id : Berry-C
 Packaging : Plastic Bottle

Received Date : 17-04-2020
 Finished Date : 08-05-2020

Microorganism Strains	Test Bacterial Suspension	Result at concentration 80 % (v/v)				Method*
		Na	< 140	% R	> 99.9991 %	
Escherichia coli (ATCC 10536)	N = 1.58×10^8 No = 1.58×10^7 Log No = 7.2	Na Log Na	< 140 < 2.15	% R Log R	> 99.9991 % > 5.05	EN 1276 : 2009 (dilution-neutralization method)
Staphylococcus aureus (ATCC 6538)	N = 1.59×10^8 No = 1.59×10^7 Log No = 7.2	Na Log Na	< 140 < 2.15	% R Log R	> 99.9991 % > 5.05	
Pseudomonas aeruginosa (ATCC 15442)	N = 1.62×10^8 No = 1.62×10^7 Log No = 7.21	Na Log Na	< 140 < 2.15	% R Log R	> 99.9991 % > 5.06	
Enterococcus hirae (ATCC 10541)	N = 2.25×10^8 No = 2.25×10^7 Log No = 7.35	Na Log Na	< 140 < 2.15	% R Log R	> 99.9994 % > 5.2	

REMARKS

Neutralizer : Peptone from meat 10 g/L, Meat extract 5 g/L, NaCl 5 g/L, Soy lecithin 1 g/L and Polysorbate 80 20 g/L

Interfering Substances : 0.3 g/L bovine albumin (Clean Conditions)

Contact Time : 1 minute Test Temperature : 20°C Incubation Temperature : 36°C

Product concentration resulting in a 10^5 or greater reduction in the number of viable cells are bactericidal (log R \geq 5 or % R \geq 99.9999 %)

N = number of cfu/ml of the test bacterial suspension

No = $N/10$

Log No = logarithmic No

Na = number of cfu/ml in the test mix

R = reduction in number of viable cells

Log R = logarithmic reduction in number of viable cells (log No – log Na)

Laboratory is not responsible for the sampling process

Conclusion :

The product **Berry-C is bactericidal** on the reference strain: Escherichia coli (ATCC 10536), Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa (ATCC 15442) and Enterococcus hirae (ATCC 10541) at the concentration of 80% (v/v), in accordance with European Standard EN 1276 : 2009, for a contact time of 1 minute at 20°C in the presence of a final concentration of 0.3 g/L of bovine albumin during the test (clean conditions).

May 08, 2020

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Certificate No. : LT-10-20-0347
 Laboratory No. : BM/IV/20/0966-0967
 Sample Matrix : Liquid Material
 Packaging : Plastic Bottle

Received Date : 17-04-2020
 Finished Date : 08-05-2020

VALIDATION AND CONTROLS

Microorganism Strains	Test Bacterial Suspension	Validation and Controls				
		Validation Suspension	A	B	C	
					966	967
Escherichia coli (ATCC 10536)	N = 1.58×10^8 No = 1.58×10^7 Log No = 7.2	Nv = 330 Nvo = 33	32	33	18.5	18.5
Staphylococcus aureus (ATCC 6538)	N = 1.59×10^8 No = 1.59×10^7 Log No = 7.2	Nv = 375 Nvo = 37.5	34.5	33.5	23	21.5
Pseudomonas aeruginosa (ATCC 15442)	N = 1.62×10^8 No = 1.62×10^7 Log No = 7.21	Nv = 465 Nvo = 46.5	45	45.5	25.5	26
Enterococcus hirae (ATCC 10541)	N = 2.25×10^8 No = 2.25×10^7 Log No = 7.35	Nv = 620 Nvo = 62	63.5	65.5	33.5	37

A = Experimental Conditions
 B = Non-toxicity of Neutralizer
 C = Method Validation

N = number of cfu/ml of test bacterial suspension

$$No = \frac{N}{10}$$

Nv = number of cfu/ml of validation suspension

$$Nvo = \frac{Nv}{10}$$

The Method is validated if :

- N is between 1.5×10^8 cfu/ml and 5×10^8 cfu/ml
- No is between 1.5×10^7 cfu/ml and 5×10^7 cfu/ml
- Nv is between 300 cfu/ml and 1600 cfu/ml
- Nvo is between 30 cfu/ml and 160 cfu/ml
- A, B, C are greater than or equal to $0.5Nvo$

In the described conditions, the neutralization method is validated for the tested bacterial strains when a concentration of 80% or the highest concentration of the products is used.

May 08, 2020

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