



Test Report

Antimicrobial Kinetics Test

Determination of antimicrobial efficacy kinetics of
antimicrobial materials

**WaterLiq Living against
Escherichia coli ESBL**

Client: E.R.S.T. Project GmbH
Aiterhofener Straße 4
94330 Salching
Germany

Order: 2020-0175.2-2

Title: WaterLiq Living against Escherichia coli ESBL

Test method: Determination of antimicrobial efficacy kinetics of antimicrobial materials

Test germ: *Escherichia coli* DSM 22311 (ESBL)

Sample description: Waterliq Living solution

Sample material: aqueous solution

Date of sample receipt: 06-30-2020

Test date: 07-06-2020

Test laboratory: Dr. Brünke MTC e.K.
Microbiological Testing Competence
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Editor: _____
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Approval: _____
Dr. Jörg Brünke (Managing Director)

1. Test method

The antimicrobial kinetics test is performed on the basis of the test method „Efficacy of antimicrobial preservation” of the European Pharmacopoeia. The test provides a visual and semi-quantitative overview of the antimicrobial efficacy of an antimicrobial sample compared to an untreated reference sample over a defined period of time.

2. Test description

For this purpose, samples (approx. 3x3cm – 5x5cm) or 0.5-1.0ml of test solutions are contaminated with a defined number of bacteria and incubated for defined periods of time under standardized conditions. Time point t0 is used to demonstrate the initial contamination. At the end of the incubation period the vital microorganisms are recovered from the samples a dilution series in plated out an agar plates. The agar plates are incubated for 18-24 hrs at 37°C and microbial growth is recorded by photography.

3. Test parameter for the performed test

Test germ:	<i>Escherichia coli</i> DSM 22311 (ESBL)
Sample material:	aqueous solutions with active ingredient
Replicates:	1
Sample size:	-
Sample volume:	1g
Sample cleaning:	-
Inoculation volume:	100µl
Inoculum (CFU/ml)	1.0×10^7
Contact time:	0, 0.5 min, 1min, 3min and 5min
Test period:	07-06-2020 – 07-08-2020

4. Comments on test samples, performance and results:


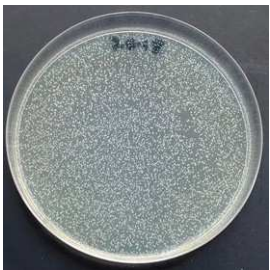



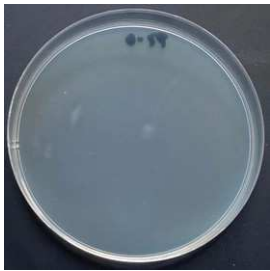
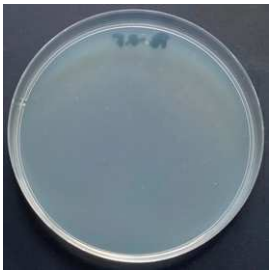
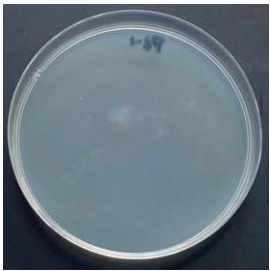
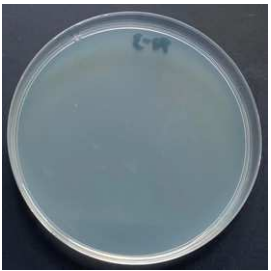
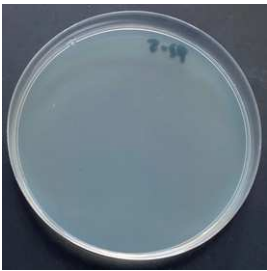
Prior to plating out the test samples, the samples were diluted with 9ml PBS and mixed. Subsequently an aliquot of 500µl were plated out an agar plate.

5. References:

European Pharmacopoeia: 5.1.3. Efficacy of antimicrobial preservation.

6. Test results

Test strain: *Escherichia coli* DSM 22311 (ESBL)

Sample		CFU t_0	CFU $t_{0.5\text{min}}$	CFU $t_{1\text{min}}$	CFU $t_{3\text{min}}$	CFU $t_{5\text{min}}$
1	Referenz					
2	Waterliq Living					

The figure shows a 1:20 dilution of the respective sample.