

MeRA Test

Microbiological test with spores of *Geobacillus stearothermophilus* for the detection of antimicrobial agent residues in meat



Clear color change
interpretation

Results within 4 hours

Some groups of antimicrobial agents, including beta-lactams and tetracyclines, are thermo-sensitive: the molecules belonging to those chemical classes are rapidly inactivated at growth temperature of thermophilic bacteria. The **MeRA Test** includes a quick pre-incubation in which *G. stearothermophilus* is allowed to germinate and proliferate, followed by a phase at room temperature suitable to allow the contact between the vegetative form of *Geobacillus* and the thermo-sensitive antibiotics, if present in the sample. Finally, the tube is reintroduced into the incubator for the last incubation. The incubation sequence of **MeRA Test** is the critical characteristic that allows the method to reach extremely low detection limits.

MeRA Test

Ref. 80356

Content of the package: 50 tests



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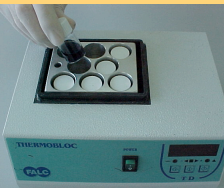



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rev. 3 - 24.05.2011

Test procedure

<p>1</p>  <p>Weigh about 50 g of meat. Cut up the tissue and mince further by electric mixer.</p>	<p>2</p>  <p>Add 2 g of minced meat and mL 6 of distilled water in a 10 mL tube. (meat:water 1:3 ratio)</p>	<p>3</p>  <p>Homogenize for a few seconds at 13000 rpm.</p>
<p>4</p>  <p>Centrifuge the homogenized meat by tabletop centrifuge set at 4000 rpm for 15'.</p>	<p>5</p>  <p>Add 1 disc of spores to the medium.</p>	<p>6</p>  <p>Preincubate for 20' at 64 °C.</p>
<p>7</p>  <p>Remove the vial from the incubator and let it reach room temperature (roughly 5'). Introduce 1 mL of the matrix sample. Let the antimicrobial agent, if present, act at room temperature for 20'.</p>	<p>8</p>  <p>Reintroduce the vial in the waterbath or in the Thermoblock at 64 °C for the second incubation for 3h - 3h 30'.</p>	<p>9</p>  <p>Watch for the color change of the medium in the vials. No color change (gree-blue color): meat sample containing antimicrobial agent residues in concentration above the detection limits. Color change (yellow color): meat sample containing no antimicrobial agent residues, or residues in concentration under the detection limits.</p>

Antimicrobial agents	MRL for meat ¹ MAXIMUM RESIDUE LIMITS (µg/kg)	MeRA Test Sensitivity in 3h 30' ² DETECTION LIMITS (µg/kg)
BETA-LACTAMS		
Ampicillin	50	25-50
Oxacillin	300	150-300
Cloxacillin	300	150-300
Dicloxacillin	300	150-300
Amoxicillin	50	25-50
Benzylpenicillin	50	25-50
Penethamate	50	25-50
Cefalexin	200	100-200
Ceftiofur	1000	<500
Cefquinome	50	25-50
TETRACYCLINES		
Tetracycline	100	100-200
Clorotetracycline	100	100-200
Oxytetracycline	100	100-200
Doxycycline	100	100-200
MACROLIDES		
Erythromycin	200	200-400
Tylosin	100	100-200
Tilmicosin	50	100-200
Spiramycin	200	200-400
LINCOSAMIDES		
lincomycin	100	100-200
Pirlimycin	100	50-100
AMINOGLYCOSIDES		
Gentamicin	50	100-200
Neomycin	500	500-1000
Streptomycin	500	500-1000
Dihydrostreptomycin	500	500-1000
SULPHAMIDES		
Sulfadiazine	100	50-100
SULFANILAMIDES		
Sulfadimidine	100	50-100
BENZIL PIRIMIDINE		
Trimethoprim	50	50-100
QUINOLONES		
Flumequine	200	200-400
Enrofloxacin	100	50-100

1. Data referred to bovine muscle. Check the Regulation 37/2010 for the full data.

2. Sensitivity of **MeRA Test** to antimicrobial agents commonly used in veterinary medicine and relevant MRL (Maximum Residue Limits) values valid in Europe. (Regulation 37/2010 EC).