

Broad spectrum screening test for the detection of antimicrobial substances in fish

Introduction

Medication of farm animals, when administered either by injection or through feed will lead to residues in the muscle, kidney or liver for a certain period of time. Antibiotics are applied as medication, or as growth promoters.

Growing concerns over consumer health-related issues are associated with the intake of these residues. Also, a rise in the numbers of drug resistant bacteria have led to an increased demand for reliable test methods. In addition, antibiotics can affect the quality and safety of dry fermented sausage by inhibiting the starter cultures.

EU legislation specifies maximum residue levels (MRL's) for antibiotics allowed in various meat products (European commission Regulation 2377/90 and amending regulations to 1191/98).

DSM has developed the Premi[®]Test, an antibiotic residue screening test, to detect antimicrobial substances in fresh fish, meat, meat products, kidney and eggs.

What is Premi[®]Test?

Premi[®]Test is a broad spectrum microbial screening test which detects a large number of the most widely used antimicrobial substances in fish. Premi[®]Test allows a reliable result within 4 hours.

Premi[®]Test is based on the inhibition of the growth of *Bacillus stearothermophilus*, a bacterium very sensitive to many antibiotics and sulpha compounds. A standardised number of spores is imbedded in an agar medium with selected nutrients.

Premi[®]Test format

Premi[®]Test is supplied in polystyrene boxes in quantities of 25 or 100 ampoules. For incubation at the required temperature of 64°C, a DSM heating block incubator or water bath is required. A complete Starter-kit Premi[®]Test containing all the necessary equipment to perform the test is available at DSM.

Why use Premi[®]Test?

Premi[®]Test is used in order to prevent that any fish containing antibiotics above the legal limits enters the food chain. It is a fast, sensitive, reliable, easy-to-use and cost-effective test covering a broad range of antibiotics.

Where conventional tests require overnight incubation, Premi[®]Test gives a reliable result in *less than four hours*. This allows you to take quick decisions on further processing of your fish.

Premi[®]Test is easy to perform. Add a small amount of fish juice to the test tube, preheat the incubator for 20 minutes, incubate the sample at 64°C for approximately three hours and check the color. A clear color change purple to yellow indicates that the antimicrobial compounds are below the Premi[®]Test detection limits. A purple color indicates the presence of antibiotics at or above the detection limit of the test.

Color range of Premi[®]Test

Positive | Negative



The test can be used for screening single or large numbers of fish samples.

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DSM Nutritional Products

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Who will use Premi®Test?

Premi®Test is suitable for fish processors, slaughterhouses, the retail industry and laboratories.

It is ideal for an "on site" use, as no special laboratory equipment is needed to conduct the test. The rapidly obtained "yes/no" result is simply read by color comparison.

Validation

Premi®Test has been externally validated by several European accredited institutes and governmental laboratories

Following additional information is available at DSM PremiTest B.V. and at our website: www.premitest.com:

- Technical bulletins on sampling procedures for fish, meat, eggs and kidney.
- Detection limits of the Premi®Test for fish, meat and eggs.
- Photo-instructions for the meat-press and the patented Multipress
- Scientific publications of the Premi®Test
- Technical bulletin for the Premi®Scan

Relevant literature:

1. European Commission Regulations 2377/90 and amending regulations to 1191/98.
2. S. L. Stead, M. Sharman (CSL, York) (2002) "Improvements to the Screening of Antimicrobial Drug Residues in Food by the use of the Premi®Test" Poster presented at residues analysis conference in Antwerp June '02
3. Beverley, S, Sharman M, e.a. (2001) "Improvement to the screening of antimicrobial drug residues in food by the use of Premi®Test" Veterinary Science: Vol. 70; April 2001
4. S. Koch, M. Dietrich (2001) "Der Premi®Test-eine Alternative zum Dreiplattentest?" DVG-Symposium in Garmisch-Partenkirchen, Germany W. Reybroek (2000) "Detection of residues of antibiotics in foodstuffs with microbiological tests using bacillus" Poster presented at Bacillus 2000, Brugge, Belgium, 30-31 August, 2000
5. K. Spörri & R. Stephan (2000) "Evaluierung eines Schnelltestes (Premi®Test) zum biologischen Hemmstoffnachweis als Screeningmethode bei der Fleischkontrolle" DVG-symposium in Garmisch-Partenkirchen, Germany
6. C.J.M. Arts and R.F. Witkamp (1999) "The Premi®Test for screening for residues of antimicrobial compounds in meat, organs and urine" TNO report V99.1031
7. Korsrud G.O. et al (1998), "Bacterial inhibition tests used to screen for antimicrobial Veterinary Drug Residues in Slaughtered Animals". Journal of AOAC International 81, 1, 21-24
8. Nouws J.F.M. et al (1988), "The New Dutch KidneyTest" Archiv für Lebensmittelhygiene 39, 135-138.

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