ENVIRONMENT/WATER ANALYSIS

The use of HettCube incubators to detect the presence of Legionella in drinking water

Legionella bacteria are the causal agents of Legionnaires' disease, which is potentially life-threatening, or Pontiac fever, which is milder. Infection normally occurs after inhaling an aerosol containing Legionella. The main sources of infection with these gram-negative bacteria, which are ubiquitous in freshwater, are all types of systems for heating drinking water and domestic water systems, evaporative coolers and cooling towers, as well as air-conditioning systems. It is therefore a legal requirement for these to be tested at regular intervals for the presence of Legionella.

Methods of detection

The presence of Legionella is detected through culture in special nutrient media as given in ISO 11731-2 (2004) and in samples of patients often through molecular biology methods such as PCR and the demonstration of antigens in the urine. These organisms are difficult to culture so that a negative result does not necessarily mean they are not present. If amoebae are present at the same time, then the Legionella may infect them and replicate inside them, and so evade detection by culturing.

Importance of the test for Legionella in practice

Under Section 3 of the German Drinking Water Act [TrinkwV 2001] "hot water systems that prepare water for the public" must be tested regularly (generally every 12 months) for the presence of Legionella. This therefore includes hospitals, care homes, schools, nurseries, hotels and sports centres and since 1 Nov. 2011 rented accommodation with hot water systems with a water storage capacity above 400 litres and more than 3 litres of water in their piping. Only accredited laboratories are authorized to carry out such testing.

Incubation conditions given in ISO 11731-2 (2004)

Temperature	Duration	Adequate moisture	Atmosphere
36 ± 2 °C	10 days	e.g., through the use of a water tray or closed container	Optional: CO_2 = 2.5 %*

*) A GasPak™** (Becton Dickinson) is often used to achieve the desired CO_2 concentration within the incubator. The Petri dishes are incubated in sealed containers in which bags containing substances that generate CO_2 are inserted.

Advantages of HettCube incubators

- Maximal validated usable space on a small footprint
- 4.3 inch touch display for intuitve operation
- Very homogeneous and stable temperature, as well as precise temperature control
- True "one-hand-operation" and flexible positioning of the shelves
- Minimal energy consumption of < 0.06 kW/h at 37 °C

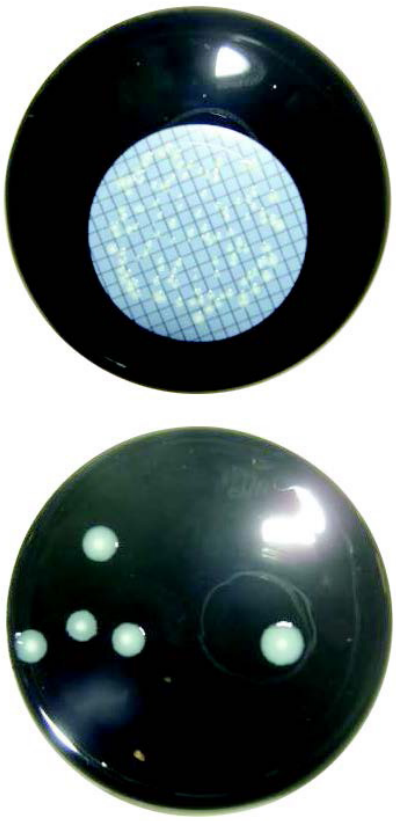

Fig. 1: Legionella colonies on GVPC agar [1)]

[1)] Image by courtesy of the CVUA Karlsruhe
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Hettich solution

Model	Cat. No.
HettCube 200	62000
HettCube 400	64000
HettCube 600	66000

Model without IVD	Cat. No.
HettCube 200	62001
HettCube 400	64001
HettCube 600	66001

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