Image: Wikimedia

HIGHLIGHTS

- Air sampling is a novel approach to detect foodborne pathogens at farms.
- This method has been successfully tested in multiple countries.
- A combination of air sampling and real-time PCR can produce results as fast as two hours versus four days when traditional methods are used.
- The likelihood of detecting *Campylobacter* in infected chickens has quadrupled with this new testing method.
- This method could have a positive impact on contamination control in poultry production all over Europe.

Air sampling: A new cost-effective test for detecting *Campylobacter* in chickens, for European farmers

> ***We finally have a low-cost and user-friendly test that can help farmers to screen their flocks for Campylobacter. This will prevent cross-contamination between flocks during poultry processing."***
>
> *Professor Jeffrey Hoorfar*

The likelihood of detecting *Campylobacter* in chicken has quadrupled with a new air testing method developed in an EU project led by researchers at the Technical University of Denmark.

In 2018, *Campylobacter* bacteria caused 70% of all human foodborne illnesses registered in Europe (246,571 cases).

Traditional methods to detect the presence of *Campylobacter* in chickens usually involve culturing boot swab samples which takes more than 4 days, whereas the new test method we discuss here produces results in just two hours.

Using novel methods, researchers have conducted comprehensive field testing from 44 flocks in four EU member states (Italy, Czech Republic, Denmark and Poland). The researchers used Norwegian chicken flocks as negative control, as chicken faeces from Norwegian flocks are generally free from *Campylobacter*.

This novel method uses a type of mini vacuum cleaner which is fitted with a special filter to collect the bacteria in the chicken house. The filter is analysed with a PCR-test, which isolates DNA and determines and quantifies *Campylobacter* 's presence in a sample. The method was developed as part of the One Health EJP project, AIR-SAMPLE.

The tests found no *Camplylobacter* in the Norwegian chicken flocks. The results also show that the likelihood of detecting *Campylobacter* in a chicken flock has quadrupled with the new method. That is, up to four times more chicken flocks show signs of *Campylobacter* being present when the new method is used compared to sock samples.

Air sampling may offer a multi-purpose, low-cost sampling method that may be integrated into self-monitoring programs.

For further information contact Professor Jeffrey Hoorfar jhoo@food.dtu.dk

Reference: Johannessen et al (2020), 'Campylobacter in chicken – Critical parameters for international, multicentre evaluation of air sampling and detection methods', Food Microbiology, 90, 1-6.

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