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## Whitley Workstations *Campylobacter* Research



The Whitley VA500 Workstation is enabling scientists to learn more about optimal growing conditions of *Campylobacter* – a pathogenic bacteria found in poultry

### The Whitley Variable Atmosphere Workstation is vital to understanding *Campylobacter*

Poultry industry quality control inspectors may soon re-evaluate their testing procedures for *Campylobacter* – the spiral-shaped bacteria found in chickens and the most common agent of enteritis infections in humans. This follows speculation that the FDA will impose stricter regulations on poultry farmers and processors for the testing of the bacteria. While current FDA regulations allow for levels of *Campylobacter* in slaughtered and processed chickens, the new regulations could mandate a zero tolerance policy for presence of the bacteria.

Many chicken flocks are infected with *Campylobacter* yet show no signs of the disease. The bacteria spreads through the flock via a common water source, contact with infected faeces – and when slaughtered, from the intestines to the meat. Human infection, occurring largely from the handling or eating of under-cooked poultry, results in diarrhoea, cramping, abdominal pain and fever. Recovery for patients suffering from Campylobacteriosis requires up to a week.

It is estimated that Campylobacteriosis strikes some 2,000,000 per year, resulting in approximately 100 deaths. However, it is believed that many cases of the illness go unreported.

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– Dr Alain Stintzi

Before the FDA can potentially institute new regulations, more must be learned about *Campylobacter*. Alain Stintzi, PhD, Department of Veterinary Pathobiology at Oklahoma State University in Stillwater, is one of a number of scientists who is studying the bacteria’s genomic and virulent characteristics. To facilitate his study, Stintzi’s department purchased a Whitley Variable Atmosphere 500 Workstation. The Whitley VA500 allows Stintzi to define the precise oxygen/hydrogen/carbon dioxide/nitrogen concentrations within the workstation – promoting an ideal growth environment for *Campylobacter* and other microaerophilic organisms.

While food and research laboratories have been testing for *Campylobacter* for many years, experimentation has traditionally occurred within gas jars. However, scientists agree that gas jars are not efficient in maintaining a constant atmosphere throughout the incubation period. As a result, presence of the bacteria is not always detected. Neither do they allow for manipulation of any type once sealed. “The VA allows us to study on a different scale,” says Dr Stintzi, referring to the device’s gloveless, dual chambers which accommodate 1,080 plates. “The Whitley Workstation allows us to perform the bacterial mRNA extraction within the chamber, ensuring the physiological state of the transcriptome. Equally important, our complete control over temperature, humidity and gas composition allows us to reproduce growth curves and any experimental growth conditions with high accuracy.” Dr Stintzi and his colleagues are in the process of preparing a second paper on the subject. “I believe the Whitley Workstation is essential to functional genomic research on *Campylobacter* in order to produce accurate and reproducible data.”

Whitley Workstations are available in single and dual chamber models. The Whitley VA500 can accommodate up to 540 plates while the VA1000 can accommodate 1,080 plates. Both workstations operate on one cylinder of conventional anaerobic gas mixture – 10% hydrogen/10% carbon dioxide/80% nitrogen for anaerobic conditions, or four individual cylinders of gas (H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub> and CO<sub>2</sub>) for microaerobic conditions. The VA’s multi-functional porthole system is used for both operator entry and sample transfer.

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