

Automated Sensor System for Airborne Microbial Detection

Technology Overview

Airborne microbial detection is the process of identifying and measuring microorganisms present in the air. This is important for various applications, including healthcare, environmental monitoring, and food safety. Traditional methods involve collecting air samples and culturing them in a laboratory to identify the microorganisms. This method is time-consuming and requires expertise in microbiology.

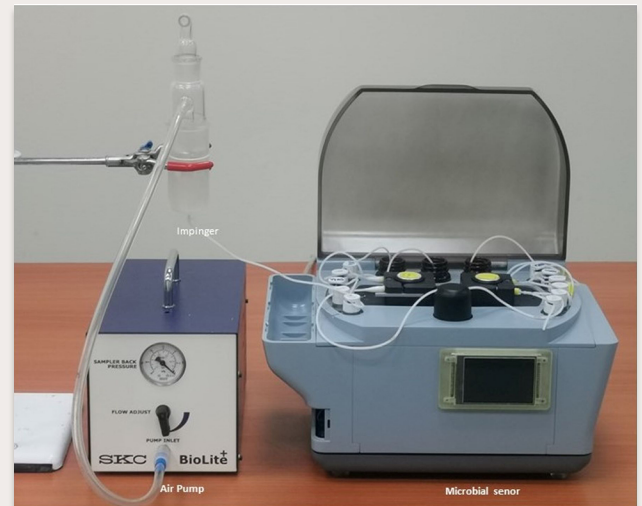
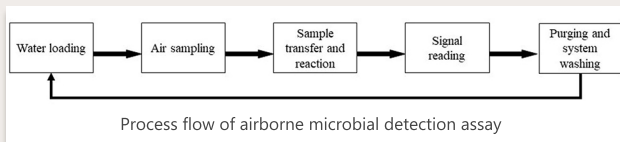
This novel system can detect presence of microorganism in atmosphere without the need for human handling.

Features & Specifications

The automated sensor system utilised chemical assay for microbial detection. Major steps in the automated airborne microbial detection process include:

- water loading,
- air sampling,
- chemical reaction,
- detection, and
- purging.

Fresh water is first loaded from the reservoir into air sampler, then environmental air is drawn in and forced through sampler where the airborne particles will be trapped in water. The sampled water is then transferred to the reactor where the microbial particles react with enzyme substrate. Fluorescent molecules produced by enzymatic reaction is then measured by optical sensor. Finally, the samples in the reactor are purged and fluidic channels are washed, completing one detection cycle. The process can be repeated for continuous monitoring.



Customer Benefits

It significantly reduces the labour involved in airborne microbial detection, thus provide solutions for long term biological monitoring of air quality.

Potential Applications

The automated sensor system is effective in detecting microbial aerosol. Current prototype can also be modified and customised for various biomedical applications, including:

- environmental monitoring,
- pathogen screening, and
- food safety testing.