

Method for rapid and differentiated Detection of particles

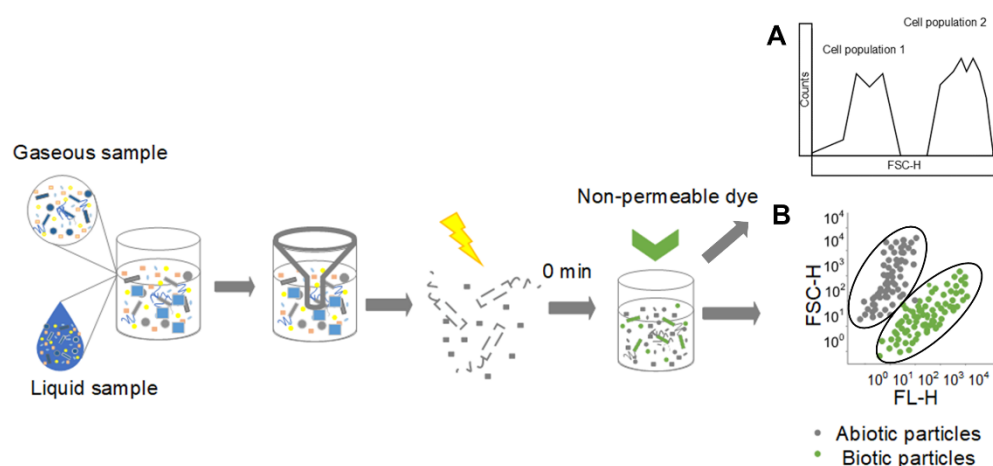
This newly developed method serves as a first indicator of deviations in microbial levels by analysing the total amount of particles. It can be used as a real-time hygiene in-house monitoring **tool** as well as a monitoring **service** for food and bioindustry by external companies.

BACKGROUND

Cultivation-based methods are the gold standard for hygiene monitoring in the food industry. However, these methods require one to several days to provide final results and also cannot detect viable, non-culturable bacteria. In addition, there is currently no method that can distinguish between biotic and abiotic particles, particularly airborne particles. Flow cytometry, which is already used in water analysis as an indicator of the overall microbial condition of liquid samples, is based on the use of toxic and carcinogenic dyes, which for safety reasons are not suitable for operational use in food and biotechnological production.

TECHNOLOGY

In this regard, the novelty value of the proposed invention relates to the direct introduction of air samples into the analytical chain by suspending air particles in a liquid carrier matrix. Electroporation is used to improve staining of microbial cells with non-hazardous (non-toxic, non-mutagenic, non-carcinogenic) dyes and non-permeable fluorescent dyes. Compared to conventional methods, it is not only faster, but also provides significantly increased signal intensity, allowing easier detection and differentiation of subpopulations and distinction among cell populations.



BENEFITS

- Use of non-toxic dyes
- Differentiation between abiotic & biotic particles
- Distinction among cell populations
- Significantly increased signal intensity
- Easier detection/differentiation of subpopulations

REFERENCE:
2020-09

AVAILABLE FOR:
R&D cooperation License
agreement
Purchase

KEYWORDS/

APPLICATIONS:

- Real-time monitoring
- Electroporation
- Non-toxic dyes
- Biotic and abiotic particle count

DEVELOPMENT STATUS:
Prototype (TRL 4)

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