

# COMPARISON STUDY



## FastPrep-24™ 5G System: an ultra-high performance sample preparation method for the reliable detection of pathogens in food and feed samples.

Efficient preparation of food and feed samples, comprising sampling and homogenization for microbiological testing, food authentication and GMO testing, are essential components of food control. Procedures involving vortexing or manual grinding have often proved inadequate.

Various mechanical homogenization techniques have been assessed in the market, and the results of these investigations indicate that the FastPrep-24 5G system is the top pick for achieving successful food safety testing due to its efficiency, ease of use, and high throughput capacity.

The FastPrep-24 5G system is an advanced, innovative bead beater for quickly lysing even the most difficult samples. It uses a unique, optimized motion to disrupt cells through the

multidirectional, simultaneous beating of specialized Lysing Matrix beads on the sample material. The FastPrep-24 5G is the only available homogenizer with 11 interchangeable adapters designed for high-throughput applications, large volume samples, and cryogenic lysis.

A wide variety of specialized Lysing Matrix tubes containing beads of different material, size and shape have been tailored to guarantee thorough homogenization of any sample.

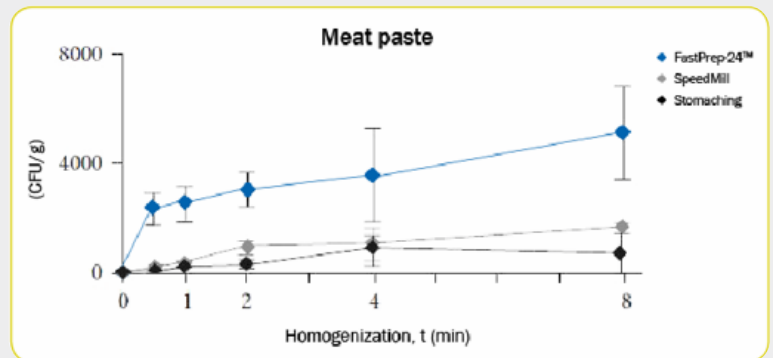
Rodhe, A. et al.<sup>1</sup> carried out a systematic comparison of different homogenization approaches, namely, stomaching, sonication, and milling by FastPrep-24 or SpeedMill (Analytik Jena) for pathogen isolation and conventional detection by cultivation for processed and unprocessed meat products.

### RESULTS ►

The FastPrep-24 homogenization method demonstrated the highest reproducibility for detection of surface food contamination.

For inner-matrix contamination, long treatments are required and only FastPrep-24, as a large-volume homogenizer, produced consistently good recovery rates, extracting seven times more pathogen after 8 minutes of homogenization compared to stomaching (figure 1).

The FastPrep-24 has also been shown to be a valuable homogenization tool in other applications, such as the authentication of fish in commercial canned products<sup>2</sup> and the identification of a large number of microorganisms involved in the production of wine<sup>3</sup>.



**Figure 1. Homogenization of inner-matrix contamination.** Release of Salmonella from whole cross sections of internally contaminated meat paste after pretreatment by FastPrep-24™, stomaching, and SpeedMill for 0, 30 s and 1, 2, 4, and 8 mins was monitored.

1. Rodhe, A. et al. *BioMed Research International*. 2015, Article ID 145437, 8 pages.
2. Infante, C. et al. *Food Research International*. 2006, 39, 1023–1028.
3. Marzano, M. et al. *PLoS ONE*. 2016, 11(6), doi:10.1371/journal.pone.0157383.



**MP BIOMEDICALS**

**NORTH AMERICA:**

800.854.0530 | [custserv.na@mpbio.com](mailto:custserv.na@mpbio.com)

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