

# iSWAB™-MB: Minimizes the foul odor of the fecal sample.

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## Introduction:

Recent research has established a significant correlation between the gut microbiome and various diseases. The primary sample type widely employed in the study of the gut microbiome is fecal samples. However, fecal samples can emit a strong and unpleasant foul odor, which can be challenging to work with. Mawi DNA Technologies has innovatively developed a non-alcohol, non-toxic stabilization device, iSWAB™-Microbiome (iSWAB™-MB). This device not only effectively preserves the nucleic acids within fecal samples at ambient temperature but also mitigates the associated odor, resulting in a more pleasant and convenient working experience.

## Method:

One fecal sample was collected and stored in a cooler bag with ice packs. The sample was then transported to the lab within 2 hours. The fecal sample was aliquoted and thoroughly mixed with 1mL of PBS or iSWAB™-MB buffer according to Figure 1. Fecal samples weighing 50, 100, 150, 200, 250, and 300 mg were used to assess the odor of varying sample amounts. The samples were then placed on a rotator at 12 rpm at room temperature overnight. All samples were briefly centrifuged. The supernatant was transferred to universal tubes that were taped on the outside to conceal their contents from view. These tubes were then assigned random numbers. Eight participants were asked to rate the odor of these samples, using a scale from 1 (no smell) to 5 (extremely strong).

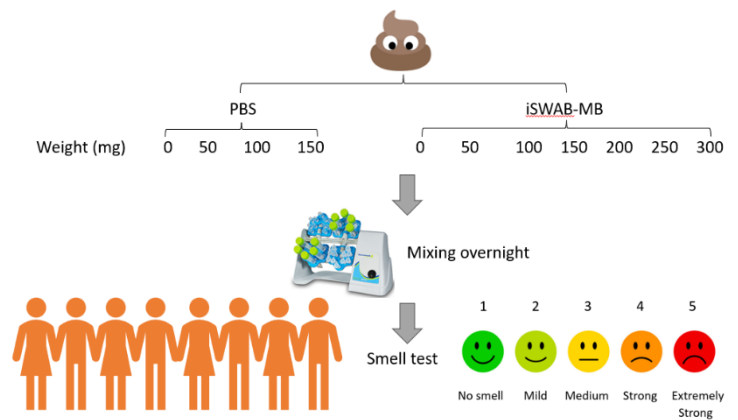


Figure 1 Workflow for the estimation of the odor from one fecal sample collected using iSWAB™-MB with PBS as the control.

## Results and Discussions:

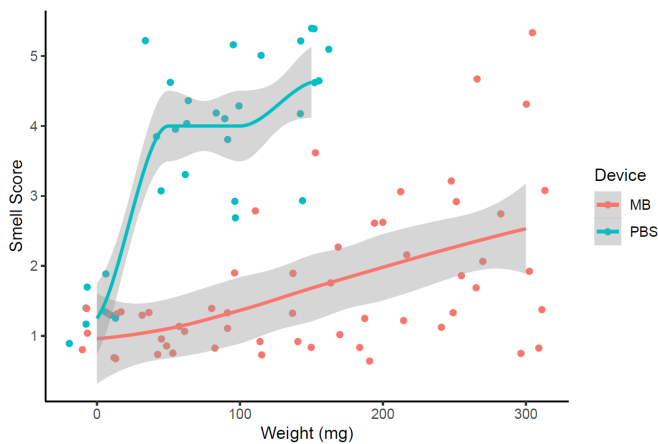


Figure 2 iSWAB™-MB emitted lower odor from the same fecal sample. Each point represents one sample evaluated by one participant. Eight participants participated in rating 11 samples. Fecal sample mixed with iSWAB™-MB buffer are shown in red. Fecal samples mixed with PBS are shown in blue. LOESS regression lines are shown for both iSWAB™-MB and PBS group in corresponding colors. 95% confidence interval is shown in grey.

To validate the effectiveness of iSWAB™-MB in reducing strong odors, the odors of fecal samples mixed with iSWAB™-MB were compared to those of fecal samples mixed with PBS as controls. The fecal samples mixed with PBS emitted a strong odor, with a smell score of 4, even at the lowest weight tested (50 mg). As the amount of fecal matter increased, the smell score increased, with 150 mg of fecal matter rated between 4 (strong) and 5 (extremely strong). In contrast, fecal matter mixed with iSWAB™-MB buffer had a much lower smell score, with 50 mg fecal matter rated close to 1 (no smell), 150 mg of fecal matter rated close to 2 (mild), and 300 mg of fecal matter rated between 2 (mild) and 3 (medium).

## Conclusion:

iSWAB™-MB device significantly reduces the foul odor of fecal samples compared to PBS buffer. The use of iSWAB™-MB devices greatly enhances the quality of life for researchers studying the gut microbiome.