

Investigating the Impact of Plant-Based Alternatives on Intestinal Microbiota Composition and Gut Health

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Aim

This project evaluates the health effects of plant-based dairy alternatives in healthy individuals and those with Inflammatory Bowel Disease (IBD). This study aims to investigate whether replacing one daily meal with a plant-based alternative has a positive impact on intestinal microbiota composition and gut health. Additionally, it investigates whether the effect of probiotic bacteria in yogurt depends on the food matrix (plant-based vs. dairy-based).

Conclusion

As plant-based alternatives become increasingly popular, it is crucial to understand their health effects, particularly for individuals with chronic conditions such as IBD, as well as for healthy individuals. This study aims to provide valuable insights into the role of gut microbiota in mitigating potential risks and enhancing the benefits of plant-based alternatives, with important implications for gut health.

Background

With the global population expected to reach 10 billion by 2050, sustainable food systems are essential. Over the past decade, plant-based products, especially meat and dairy alternatives have expanded rapidly. While these diets are promoted for sustainability and linked to health benefits, it remains unclear whether plant-based alternatives are healthier than the animal-based alternatives. As their consumption increases, assessing their impact on gut microbiota is crucial, particularly for individuals with chronic conditions such as IBD.

Preliminary Results

In the plant-based yogurt group, Firmicutes decreased by 16.7%, while Bacteroidetes increased by 19%. In the dairy-based group, Firmicutes decreased by 15.5% and Bacteroidetes increased by 27.5% (Figure 1). At the genus level, *Bacteroides* increased in both groups, while *Faecalibacterium* and *Prevotella* showed different trends. Beta diversity also differed between groups (Figure 2). While statistical significance cannot yet be determined (n=10), early trends suggest that plant-based alternatives impact gut microbiota. Further analysis on dietary fiber, phytic acid, and microbiological composition is ongoing.

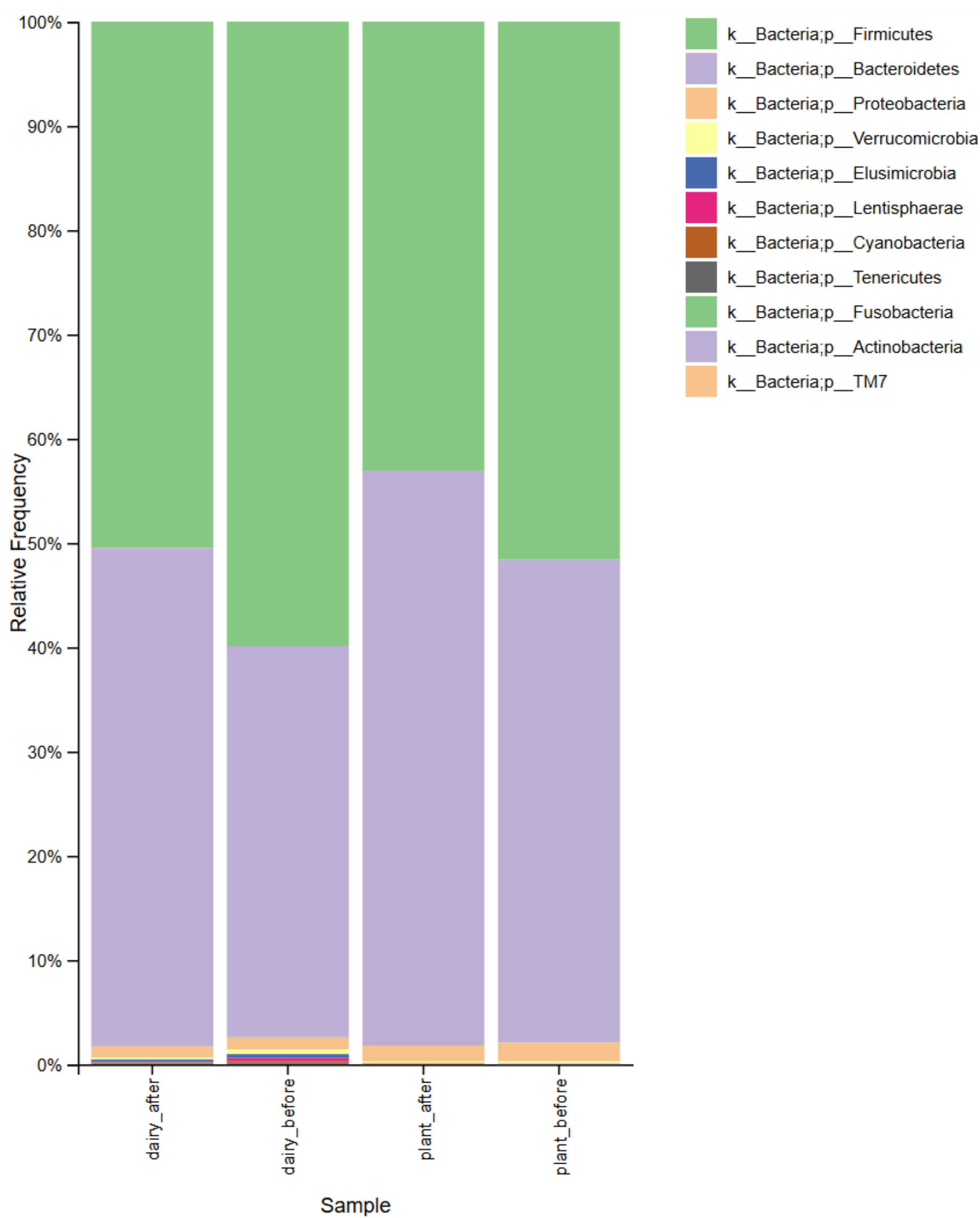


Figure 1: Taxonomic bar plot showing the relative abundance of bacterial phyla across all 10 samples.

Study Design

- Open prospective intervention.
- Each participant serves as their own control.
- This study is approved by the Swedish Ethical Review Authority, **DNR: 2024-05870-01**.

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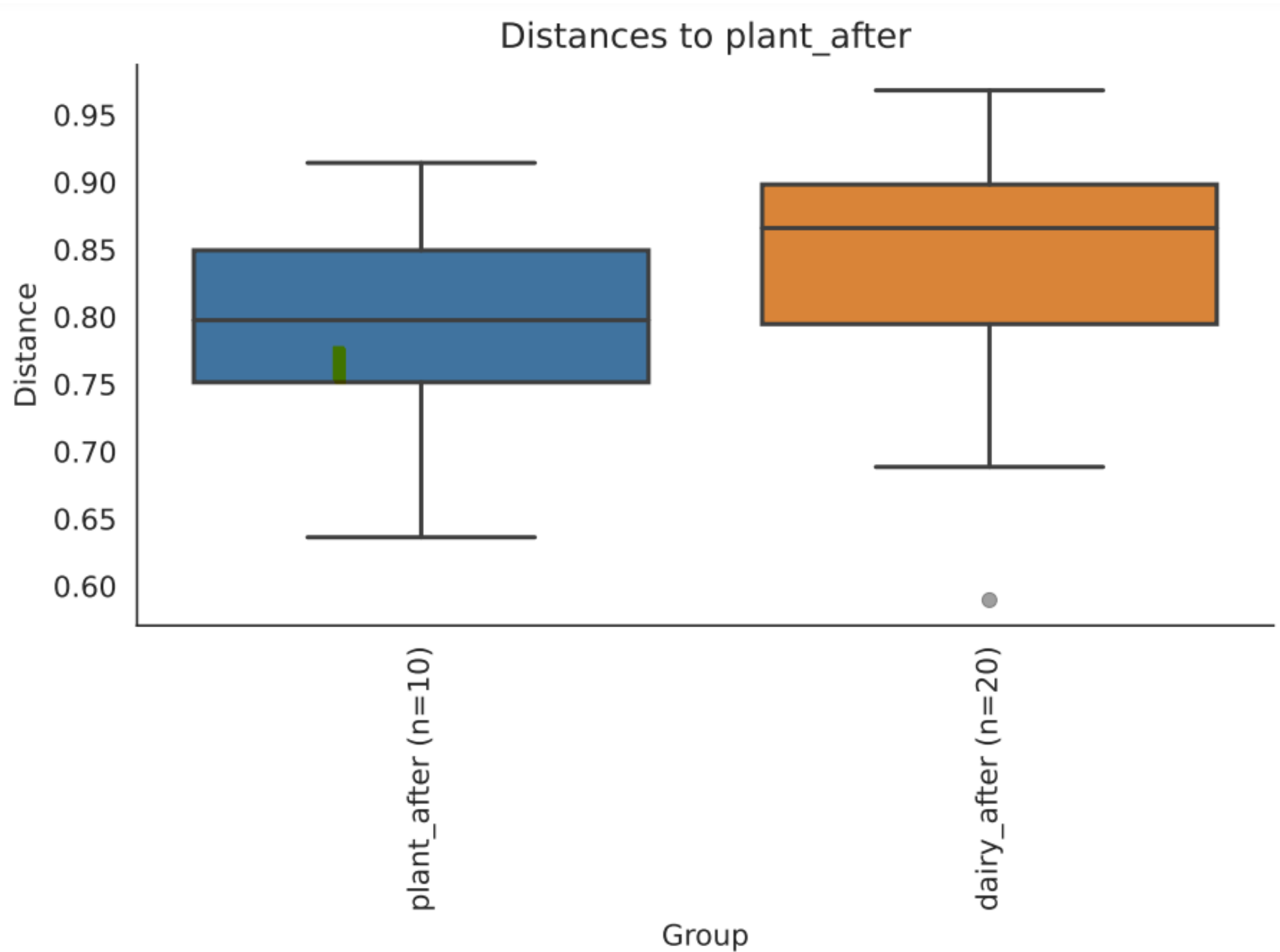
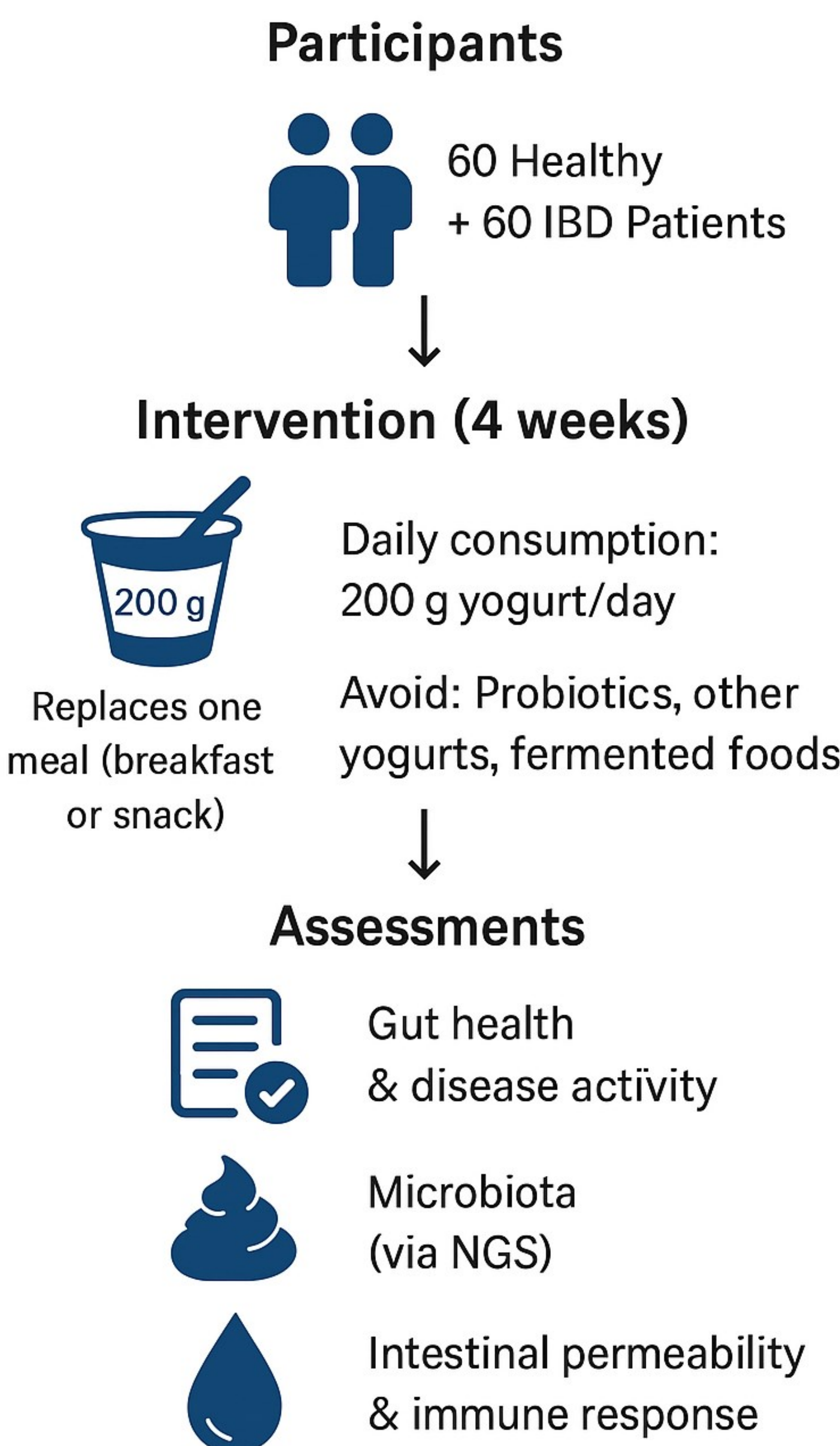


Figure 2: Beta diversity for the plant-based and the dairy-based yoghurt consumers.