Effects of Mango Fruit Consumption on the Diversity of the Gut Microbiome

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Objectives: Some individual fruits have been widely researched for their effects on overall health and correlations with chronic diseases, highlighting the benefits and importance of incorporation of fruit in the diet. Beneficial effects of mango supplementation on metabolic diseases have been detected, however, research of mango consumption on the gut microbiome is sparse. Therefore, this study examined the effect of fresh mango consumption on the diversity of the gut microbiome.

Methods: In a 12-week crossover design study, 27 participants (16 males and 11 females, age 26.0 ± 8.1 years, BMI 31.8 ± 4.1 kg/m^2) consumed 100 kcal/day of either mangos or low fat cookies with a washout period of 4 weeks. Fecal samples were analyzed for gut microbiome analysis. Alpha diversity, beta diversity, and relative abundance analyses were conducted using R and the RStudio.

Results: The mango intervention resulted in higher Shannon-Wiener and Simpson alpha diversity indices of the microbiome than the cookie intervention in week 4. Significant differences in beta diversity of the microbiome were found between diet interventions at week 12. Mango consumption also increased the abundance of *Prevotella maculosa*, *Corynebacterium pyruviciproducens*, and *Mogibacterium timidum* while decreased *Prevotella copri*. Cookie intake increased *Cyanobacterium aponinum* and *Desulfovibrio butyratiphilus* and reduced *Alloscardovia omnicolens*.

Conclusions: Given these results, it can be concluded that consumption of mango may have positive effects on the gut microflora, which in turn may yield possible health benefits for chronic diseases that deserve further study.

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