

**Supplement 8: Differences in beta diversity between whole food and synthetic diets without xylan-fed samples.** NMDS ordinations of **(A)** weighted and **(B)** unweighted Bray-Curtis distances between cockroach hindgut samples from this study ("Synthetic") and data from Tinker and Ottesen (2016) for cockroaches fed tuna, butter, honey, wheat flour, and white flour ("Whole Food Diets"), excluding xylan-fed samples. Samples were rarefied to 7924 ASVs for beta diversity analysis. R<sup>2</sup> and p-values for diet type comparisons were calculated using PERMANOVA.