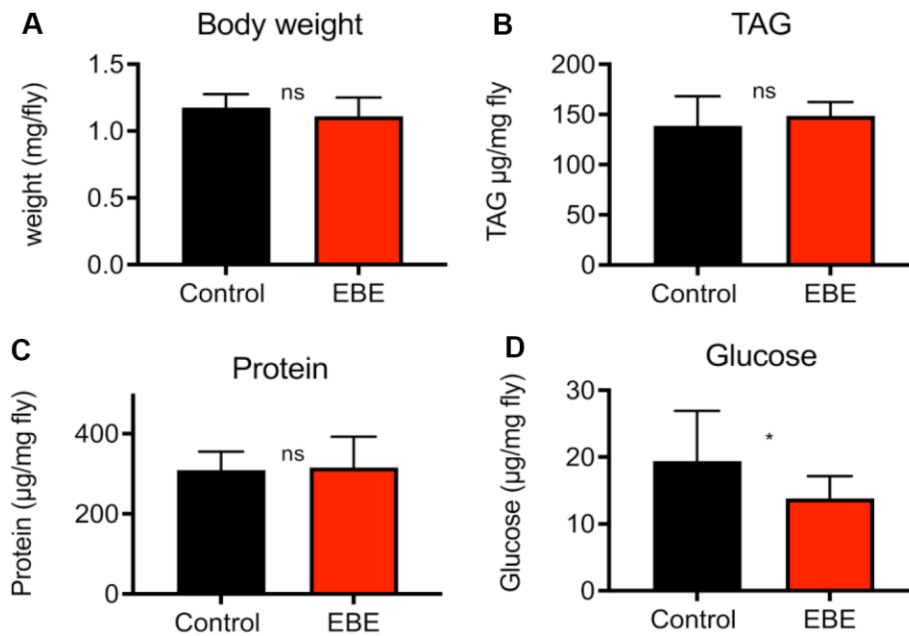
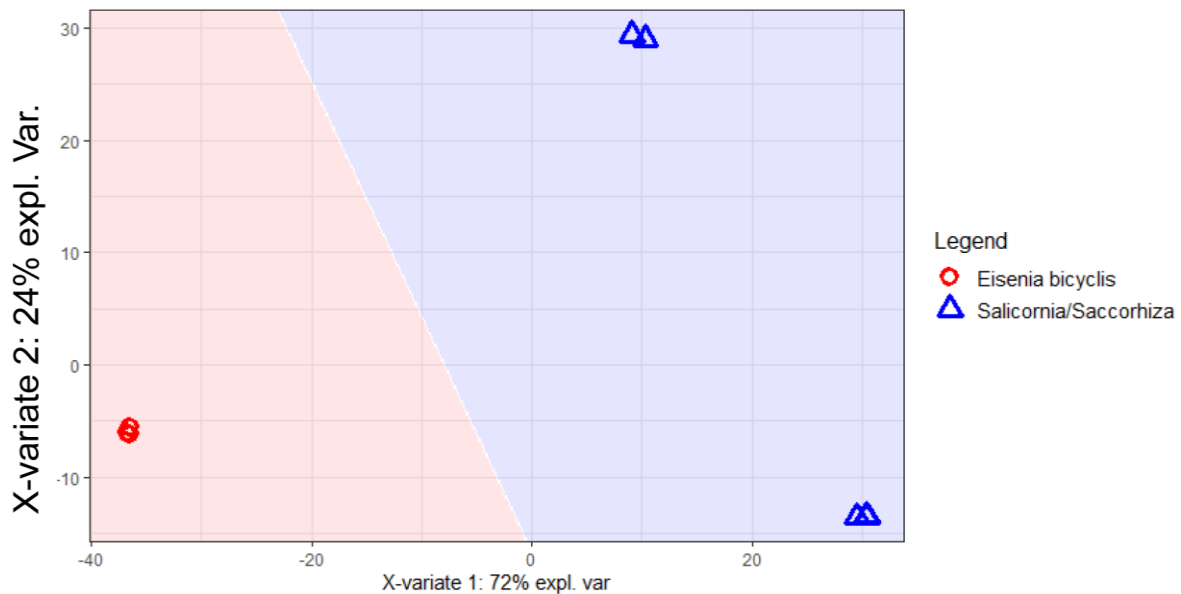


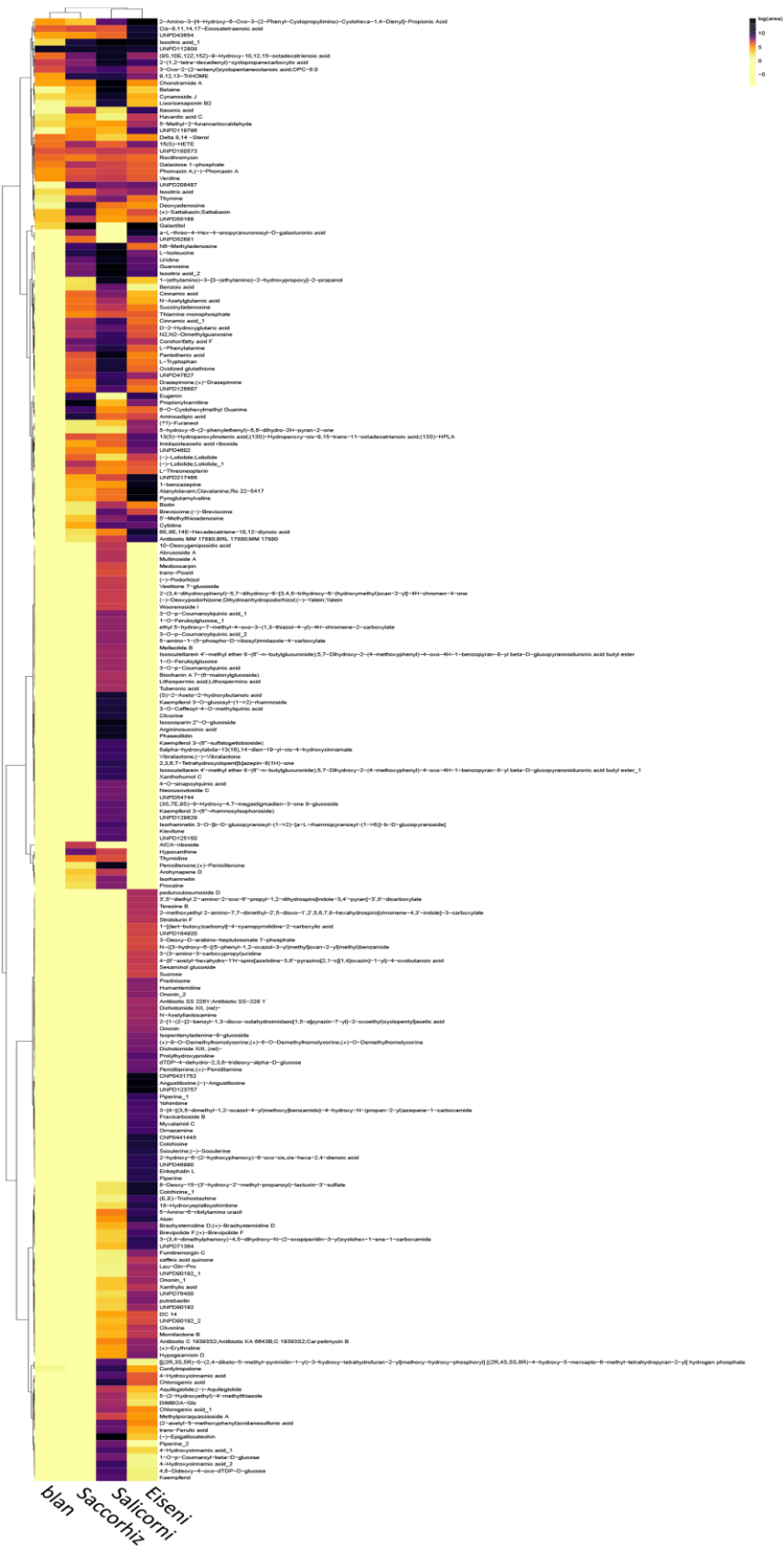
**SUPPLEMENTARY FIGURES**



**Supplementary Figure 1. Effect of *Eisenia bicyclis* extracts on female flies subjected to a HSD.** Body weight (A), TAG levels (B), protein contents (C), and glucose contents of females on high sugar control diet and high sugar diets supplemented with 0.05 %. N≥10, mean values ± S.E.M. are given (D). Statistical analyses were performed with unpaired t-tests. ns means not significant, \* means p< 0.05.



**Supplementary Figure 2. Untargeted metabolome analysis of algae extracts.** Partial least-squares discriminant analysis of algae extracts measured using the ESI+ and ESI- acquisition mode. Underlying peak areas are log10 transformed and pareto-scaled. The Top100 features responsible for the separation of *Eisenia bicyclis* from *Salicornia/Saccharhiza* were extracted for further analysis (Supplementary Table 4).



Supplementary Figure 3. Heatmap of metabolome analysis of algae extracts. Relative abundances of the Top100 compounds showing differential distribution between the samples (*Eisenia bicyclis*-, *Salicornia spec.*-, *Saccorhiza polyschides*-extract).