Supplementary FIGURES

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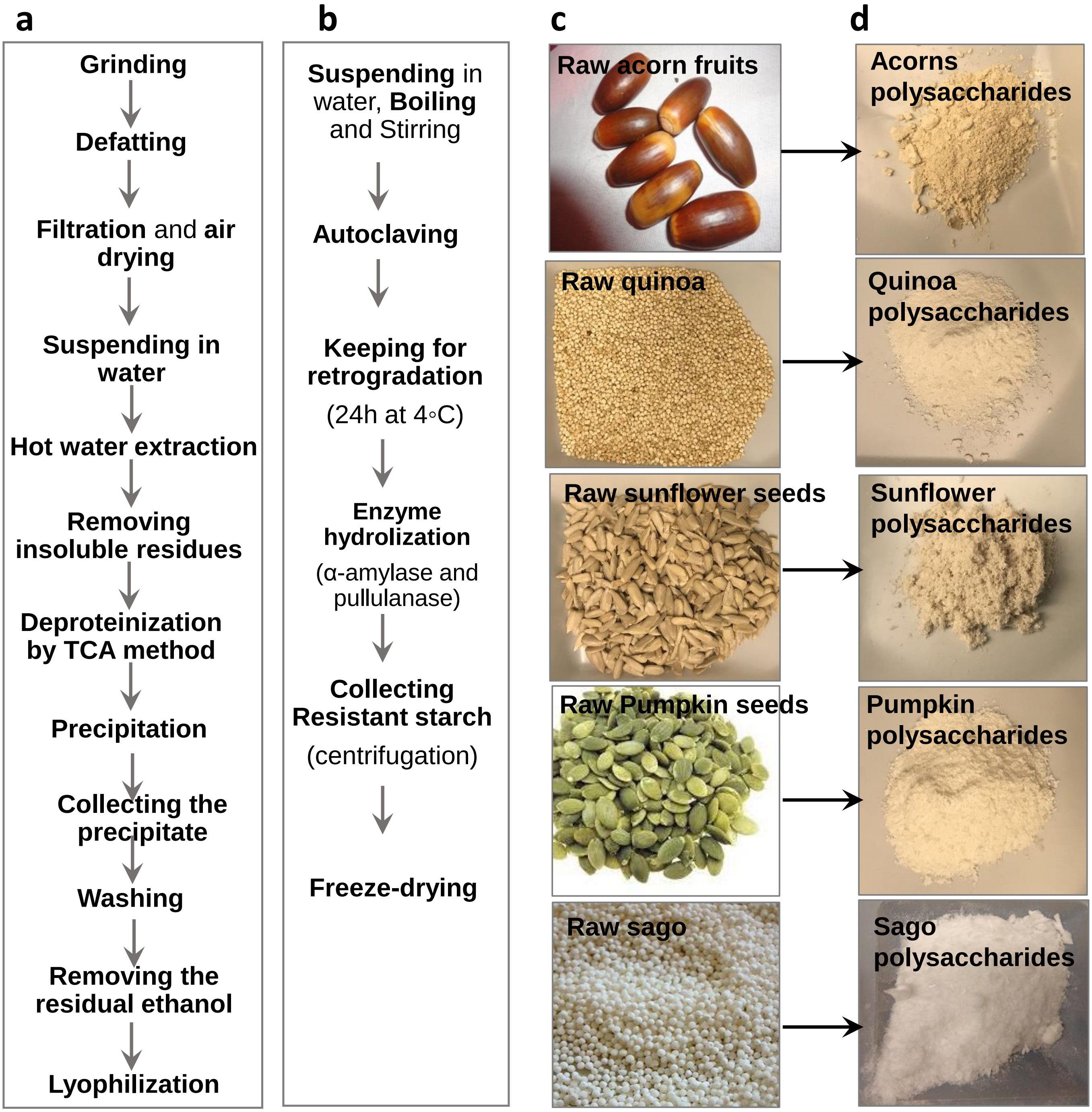
Supplementary FIGURE S1



a

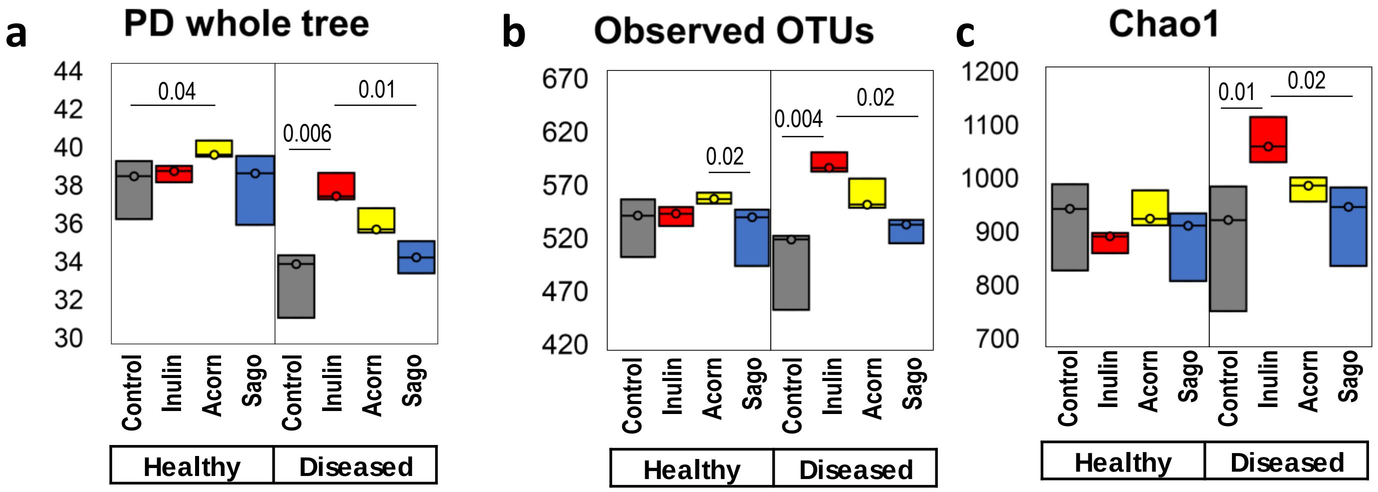
Grinding
↓
Defatting
↓
Filtration and **air drying**
↓
Suspending in water
↓
Hot water extraction
↓
Removing insoluble residues
↓
Deproteinization by TCA method
↓
Precipitation
↓
Collecting the precipitate
↓
Washing
↓
Removing the residual ethanol
↓
Lyophilization

b

Suspending in water, **Boiling** and Stirring
↓
Autoclaving
↓
Keeping for retrogradation (24h at 4°C)
↓
Enzyme hydrolization (α-amylase and pullulanase)
↓
Collecting Resistant starch (centrifugation)
↓
Freeze-drying

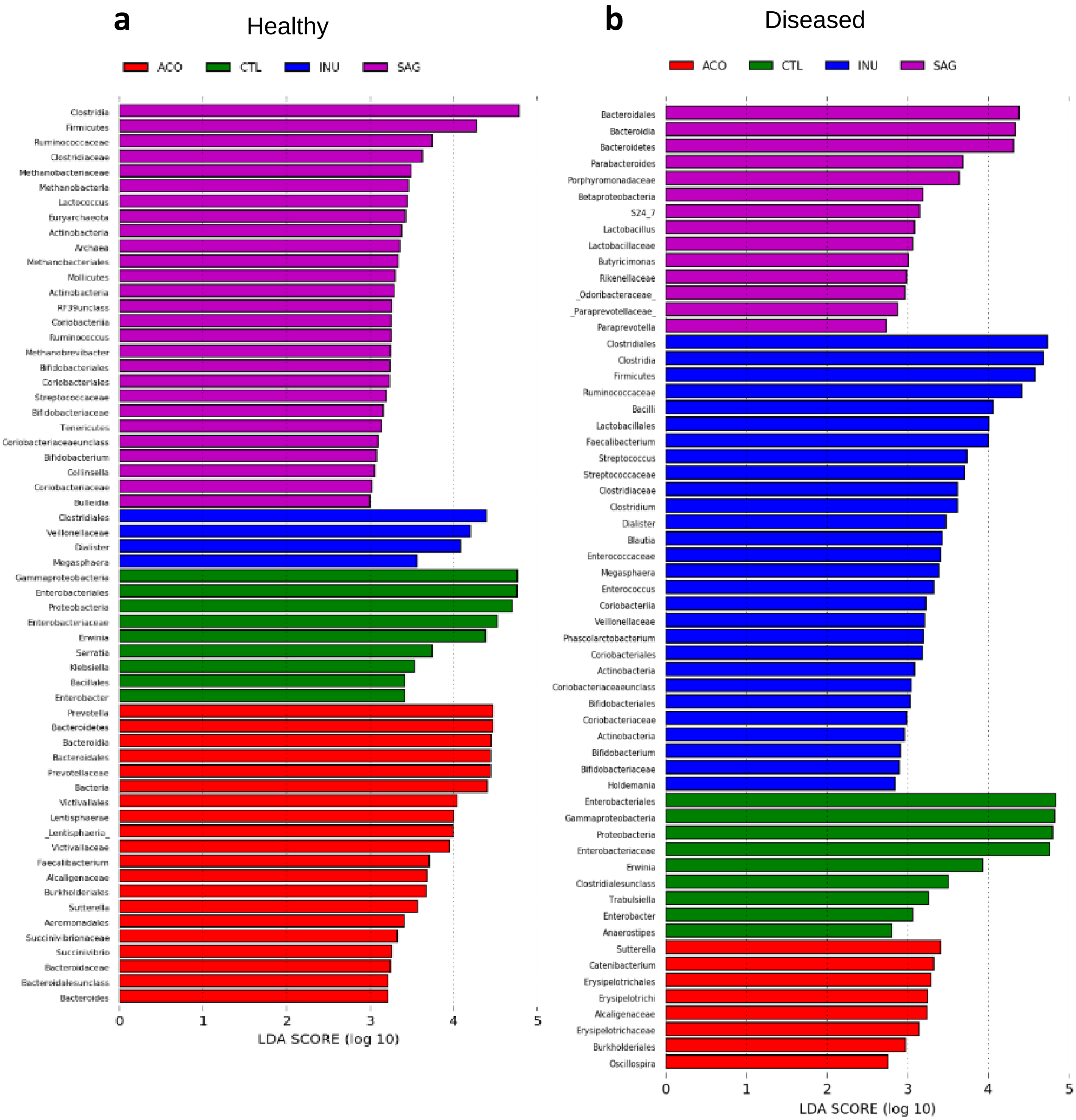
Supplementary Figure 1. Isolation of prebiotics. a,b) The flow –chart of polysaccharide extraction process from acorn, quinoa, sun flower and pumpkin seeds (a) and from Sago (b). c,d) Raw materials (c) used for prebiotics/polysaccharides (d) isolation.

Supplementary FIGURE S2



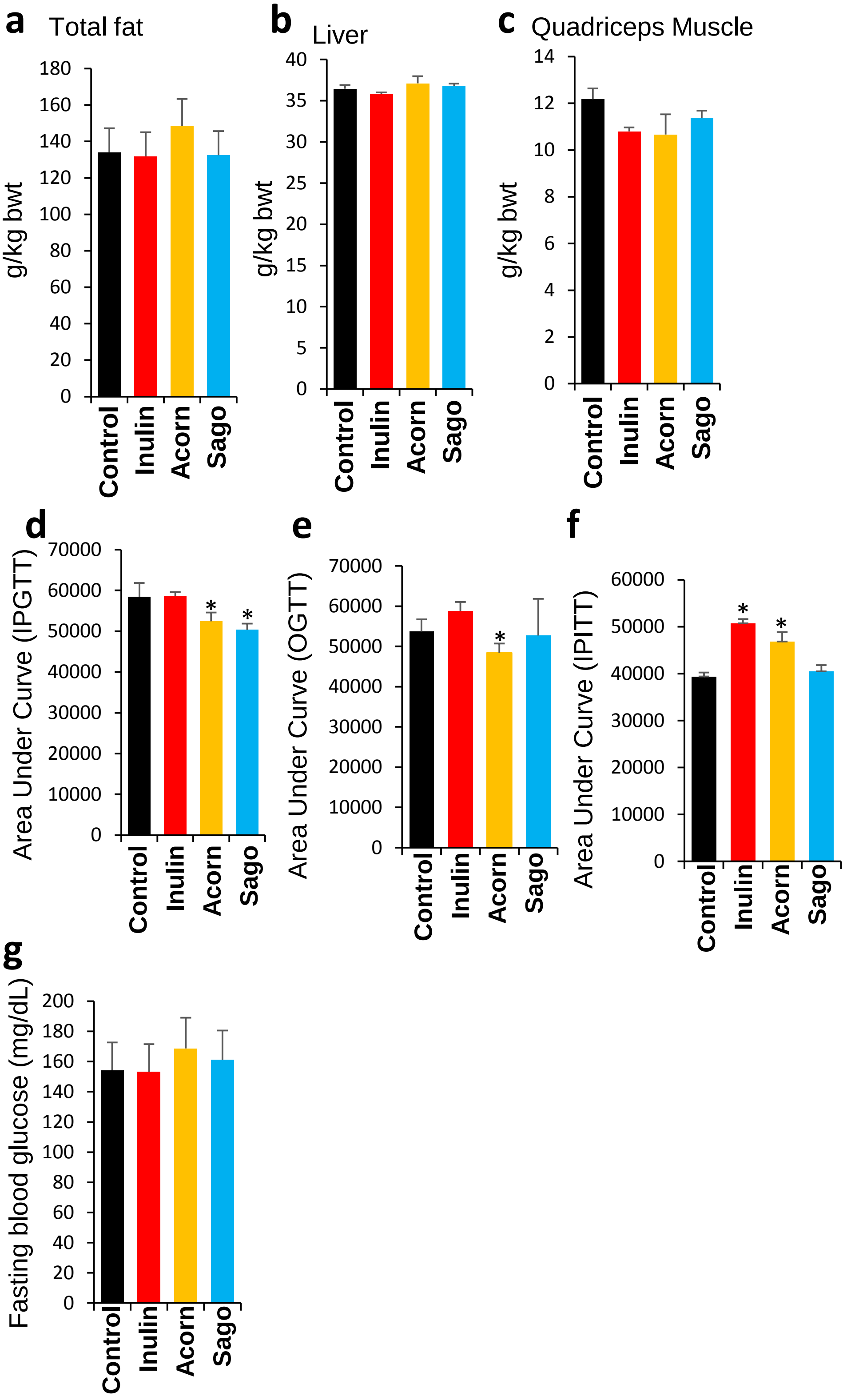
Supplementary Figure 2. Impact of prebiotics treatments on α-diversity indices in healthy and diseased fecal microbiome. a-c) Phylogenetic degree (PD) whole tree (a), observed operational taxonomic units (OTUs) (b) and Chao1 (c) in healthy and diseased fecal microbiome after prebiotics treatments. Values presented here are mean ±SD/SEM.

Supplementary FIGURE S3



Supplementary Figure 3. Linear discrimination analysis (LDA) effects of prebiotics treatments on healthy (a) and diseased (b) fecal microbiome.

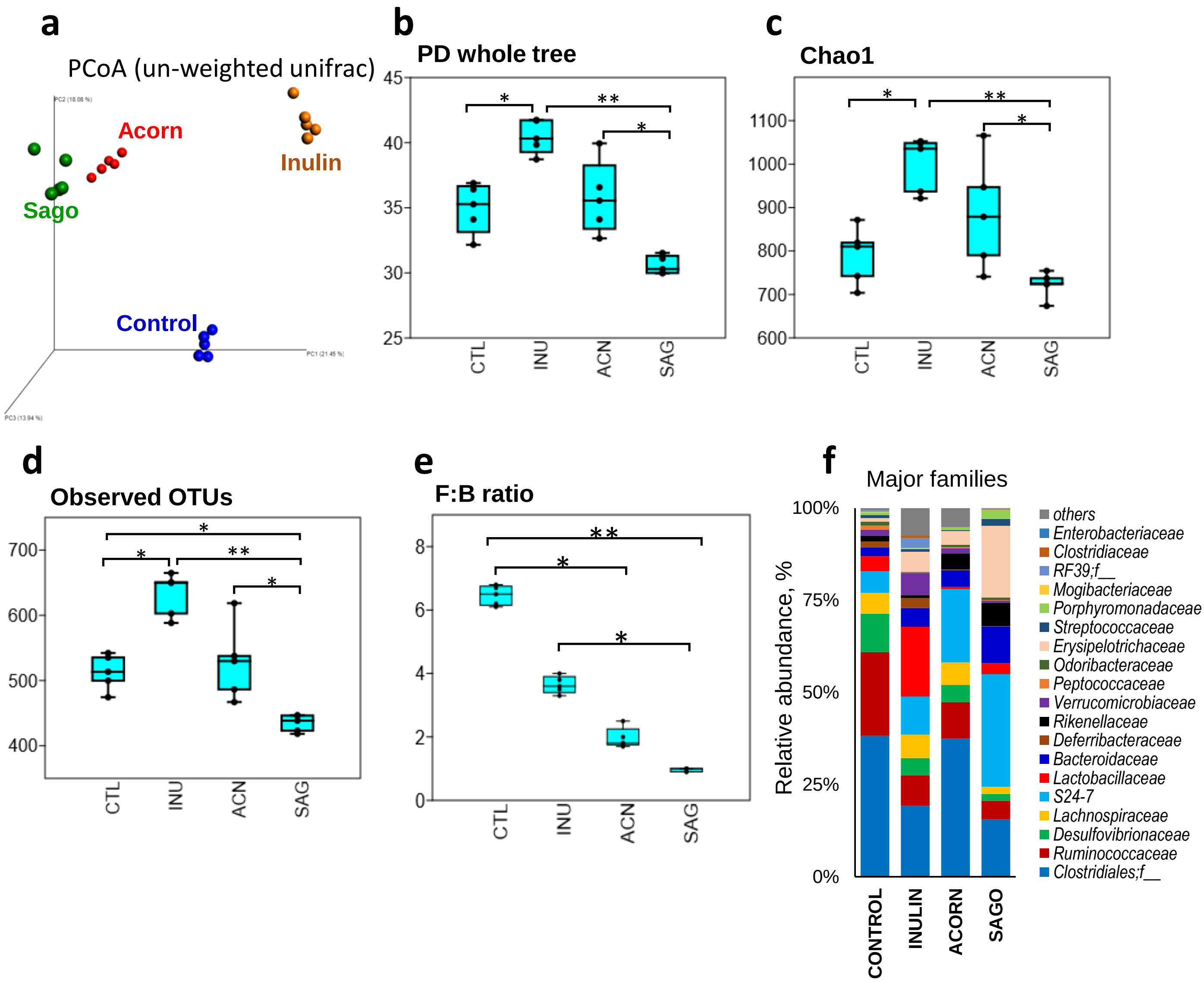
Supplementary FIGURE S4



Supplementary Figure 4. Effects of prebiotics treatments on organ weights like total fat depots (a), liver (b), quadriceps muscles (c), area under curve (d-e) during IPGTT, OGTT and IPITT and fasting blood glucose (g) in HFD-fed mice after 7 weeks. Values presented here are mean ±SD/SEM. P values *<0.05.

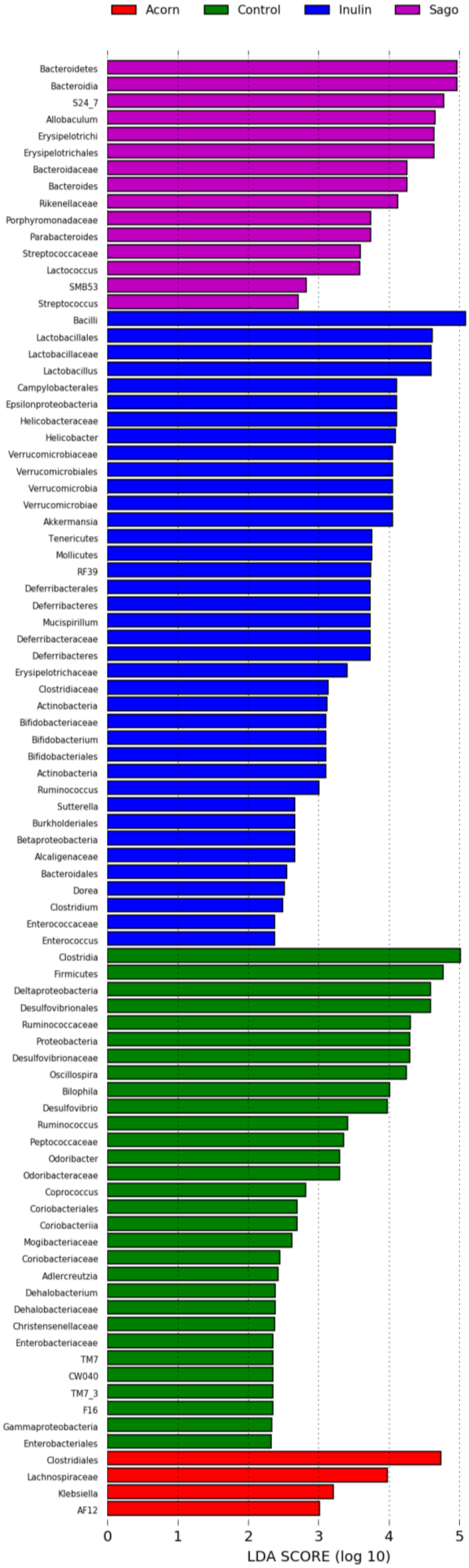
Supplementary FIGURE S5

Mouse data



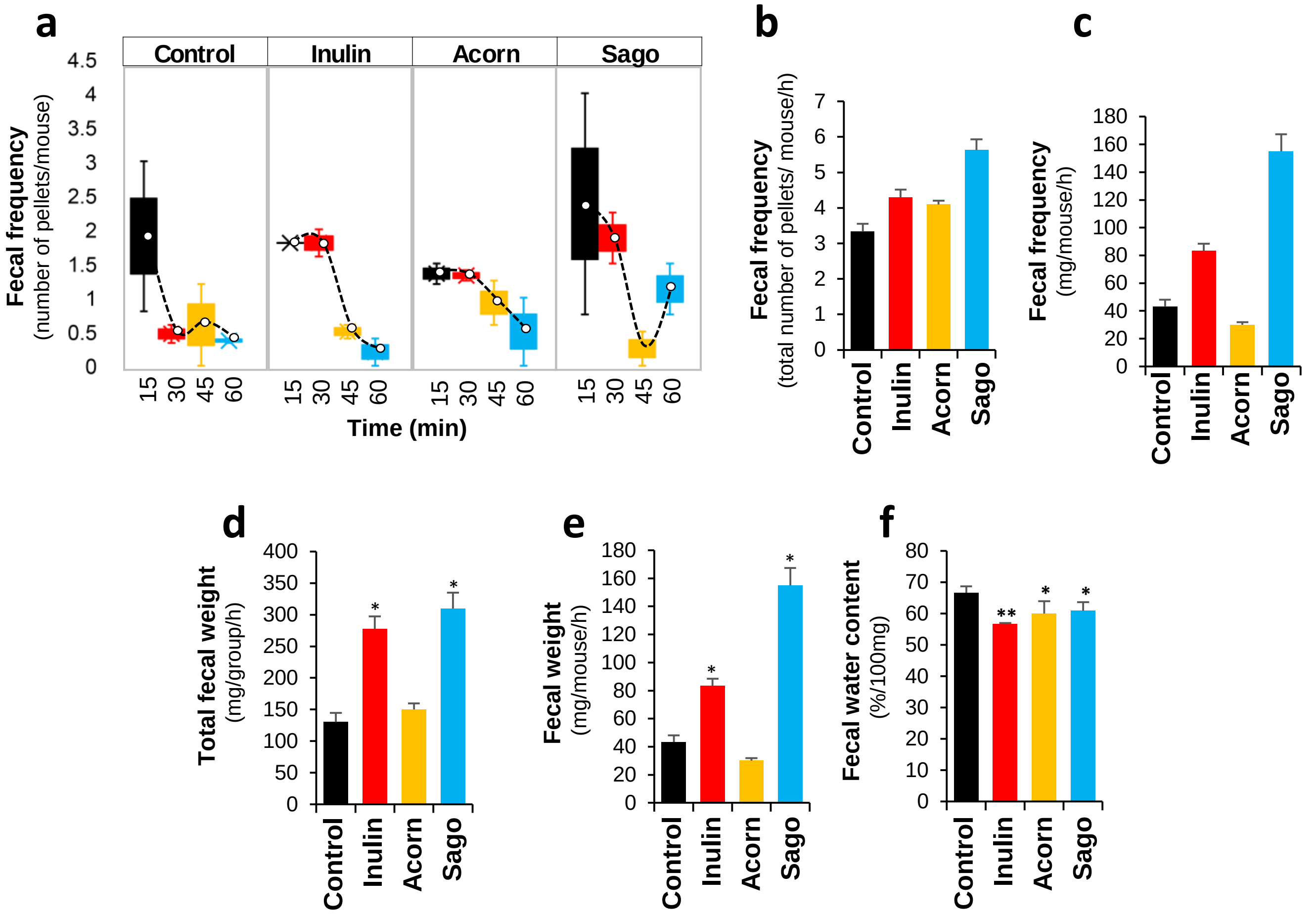
Supplementary Figure 5. Impact of prebiotics feeding on gut microbiome signature of HFD-fed mice. a) PCoA analysis (unweighted unifrac) presenting β-diversity of gut microbiome signature after prebiotics feeding in HFD-fed mice. b-d) Phylogenetic degree (PD) whole tree (b), Chao1 (c), and observed operational taxonomic units (OTUs) (d) in HFD-fed mice after prebiotics treatments. e) Firmicutes: Bacteroides (F:B) ratio in HFD-fed mice after 7 weeks of prebiotics feeding. f) Major bacterial families enriched in microbiome analysis that are impacted upon prebiotics feeding in HFD-fed mice. CTL: Control, INU: inulin, ACO: acorn, and SAG: sago. Values presented here are mean ±SD/SEM. P values *<0.05 and **<0.01.

Supplementary FIGURE S6



Supplementary Figure 6. Linear discrimination analysis (LDA) effects of prebiotics treatments on gut microbiome of HFD-fed mice.

Supplementary FIGURE S7



Supplementary Figure 7. Effects of prebiotics treatments on fecal frequency (a-c), fecal weight (d,e) and fecal water content in HFD-fed mice after 7 weeks. Values presented here are mean ±SD/SEM. P values *<0.05 and **<0.01.