**Supplementary materials**

**Interaction between genetics and inulin affects host metabolism in rainbow trout fed a sustainable all plant-based diet**

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**Supplementary figures**

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**Supplementary Figure 1**: Plot of alpha and beta diversity and OTU composition in the intestine of two genetic lines (Temoin and Suave) of rainbow trout fed 0% and 2% inulin before filtering out *Mycoplasma* and *Streptophyta*. (A) Alpha diversity measures (Observed OTUs and Shannon index) in different feeding groups (TVO: Temoin-0% inulin; TVI: Temoin-2% inulin; SVO: Suave-0% inulin; SVI: Suave-2% inulin). Measurements were performed separately for the content (C) and mucus (M) samples. There was no statistically significant effect of inulin or line on the alpha diversity measurement (Two-way ANOVA; p>0.05). The differences between the mucus and content samples were significant both the observed and Shannon indexes (One-way ANOVA; p=0.0001). (B) Beta diversity calculated using the Bray-Curtis dissimilarity matrix is shown in an NMDS plot. Sample types (content and mucus) are color coded. Feeding groups are represented by different shapes (0% inulin: sphere; 2% inulin: triangle). There was a significant effect of sample type (mucus Vs contents) on beta diversity (PERMANOVA: P=0.0001). (C) Composition of the different OTUs in the content (C) and mucus (M) samples. Taxonomies assigned to OTUs are color-coded (at genus level). Feeding groups are symbolized as TVO: Temoin-0% inulin; TVI: Temoin-2% inulin; SVO: Suave-0% inulin; SVI: Suave-2% inulin.

**Supplementary table 1**: Analysis of the nutrient composition of the different feeds used in the study.

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| --- | --- | --- | --- |
| Parameters | Control diet (0% inulin; TVO, SVO) | Experimental diet (2% inulin; TVI, SVI) | p value |
| Crude lipids (%DM) | 23.08 ± 0.27 | 21.46 ± 0.45 | >0.05 |
| Crude protein (%DM) | 45.18 ± 0.18 | 45.76 ± 0.37 | >0.05 |
| Gross energy (kJ kg−1 of DM) | 24.54 ± 0.02 | 24.32 ± 0.04 | >0.05 |
| Dry matter (DM)(%) | 95.87 ± 0.26 | 96.49 ± 0.21 | >0.05 |
| Ash (%) | 6.42 ± 0.05 | 7.77 ± 0.04 | >0.05 |

The data is presented as the mean ± Sd, n=3. Means between the groups were compared using a one-way ANOVA. There were no significant differences in means between groups (p>0.05).

**Supplementary table 2**: Whole body proximate composition of the fish at the end of the experiment.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters | TVO | TVI | SVO | SVI | p value | | |
| Inulin | Line | Inulin\*Line |
| Crude lipids (% DM) | 44.73 ± 1.27 | 43.89 ± 1.04 | 43.19 ± 1.29 | 43.12 ± 1.42 | 0.55 | 0.151 | 0.614 |
| Crude protein (% DM) | 48.73 ± 1.19 | 48.89 ± 1.22 | 50.28 ± 0.97 | 49.83 ± 1.21 | 0.832 | 0.10 | 0.654 |
| Gross energy (kJ kg−1 of DM) | 29.29 ± 0.32 | 29.42 ± 0.28 | 29.25 ± 0.16 | 29.01 ± 0.43 | 0.771 | 0.259 | 0.349 |
| Dry matter (DM) (%) | 100 ± 0 | 100 ± 0 | 100 ± 0 | 99.98 ± 0.04 | 0.29 | 0.29 | 0.29 |
| Ash (%) | 5.76 ± 0.14 | 5.84 ± 0.40 | 6.03 ± 0.46 | 5.72 ± 0.15 | 0.541 | 0.71 | 0.316 |

The data is presented as the mean ± Sd, n=3. Means between the groups were compared using a two-way ANOVA. There was no significant effect of the factors (Line and Inulin) on the parameters measured (p>0.05)