**Supplementary Table 1** Composition of the experimental diets

|  |  |  |
| --- | --- | --- |
|  | ND | AX |
| α-corn starch (g) | 45.4 | 45.4 |
| Sucrose (g) | 22.8 | 22.8 |
| Casein (g) | 20.0 | 20.0 |
| Cystine (g) | 0.3 | 0.3 |
| Soybean oil (g)  | 5.0 | 4.8 |
| Bio Astin SCE (g) | 0 | 0.2 |
| Vitamin mix (g) | 1.0 | 1.0 |
| Mineral mix including choline (g) | 3.5 | 3.5 |
| Cellulose (g) | 2.0 | 2.0 |
| Tertiary butylhydroquinone (g) | 0.0014 | 0.0014 |

Bio Astin SCE contains 10% astaxanthin derived from *Haematococcus pluvialis*. ND, normal diet; AX, astaxanthin-supplemented diet.