



Capturing
nature's power

Enhancing performance and
productivity, naturally

Sugarex AQUA

Feed intake enhancer in fish



Neohesperidin Dihydrochalcone (NHDC) is an additive derived from the hydrogenation of Neohesperidin, a flavanone which is found in bitter oranges (*Citrus aurantium*). NHDC is up to 1,800 times sweeter than sucrose at threshold levels and its main features are:

- It is a high-intensity sweetener and flavouring agent
- Acts in synergy with other natural and artificial high intensity sweeteners
- Is used to mask unpleasant tastes
- Enhances and modifies flavours

Neohesperidin DC (NHDC) is an effective high-intensity sweetener that boosts the feed intake of piglets, calves, sheep, and dogs. In February 2015, NHDC use was extended to pigs for fattening and fish in the EU. Scientific studies have demonstrated that the inclusion of NHDC in animal diets increases feed intake, average daily gain, and the conversion rate, thus improving animal performance.

HTBA is the leading manufacturer of the intense sweetener and flavour enhancer Neohesperidin DC. HTBA's experience allows the design and the production of a specific range of additives premixture such as SUGAREX, whose main ingredient is NHDC, showing promising results in fish trials.

BENEFITS ON FEED INTAKE, FEED UTILISATION EFFICIENCY, GROWTH AND BODY CONDITION OF SUGAREX SUPPLEMENTED TO DIFFERENT DIETS IN ATLANTIC SALMON (*Salmo Salar*)

Materials and Methods

Location: R&D facility of the AquaBioTech Innovia, situated in Malta.

Trial dates: Between March 30th 2024 and May 15th 2024, for a total of 56 days (8 weeks).

The purpose of this study was to look at the use of **Sugarex®**, supplemented to different diets for Atlantic salmon (*Salmo salar*), to improve palatability and feed intake, with the trial carried out at the facilities of **ABT Innovia**, a fully licenced aquatic research and testing facility owned and operated by **AquaBioTech Group**.

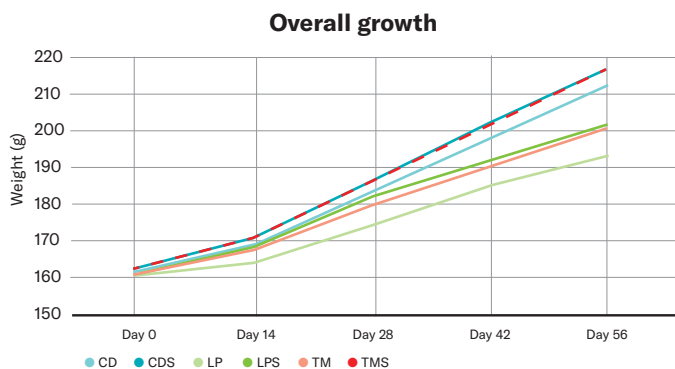
Atlantic salmon (*S. salar*) with an average weight of 161 g were split into the 30 experimental units at the start of the trial. Fish were netted from the holding tanks, graded, and randomly allocated to the trial tanks to achieve a start number of 30 fish per unit, for a total number of 900 fish.

Six different 4mm extruded diets were formulated and produced: a control diet (CD), a low palatability diet (LP) and a medicated diet (TM), and the same diets which were supplemented with **Sugarex®** to give three more diets: CDS, LPS and TMS.

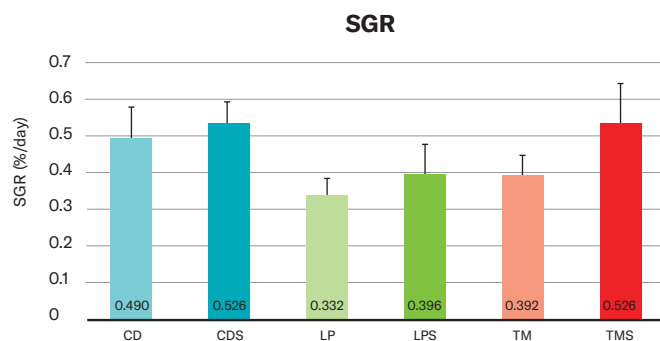
The trial was implemented with 5 replicates per treatment; fish were fed by hand, 3 times a day, to satiation with fish behaviour and daily feed intake being recorded after every feeding.

Dosage of SUGAREX®: 600 PPM (g per Metric Ton)

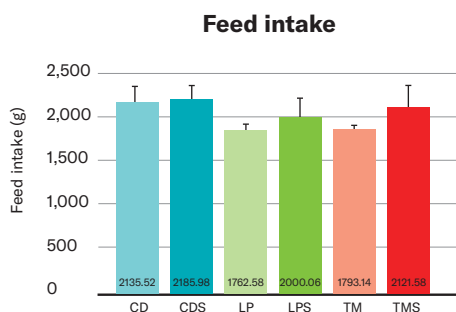
SIGNIFICANT P-VALUES IN THE FOLLOWING RESULTS AFTER THE 8 WEEKS OF THE TRIAL:



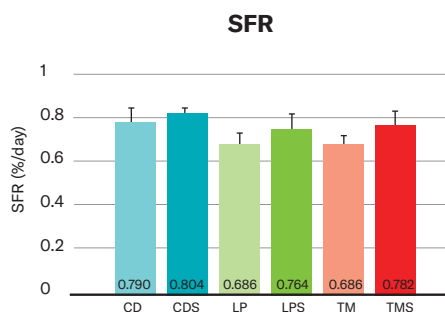
Increase of all Overall Growth with the **Sugarex®** added diets. It was also seen a significant increase of the final average weight with the TMS diet (7.9%) (P = 0.018).



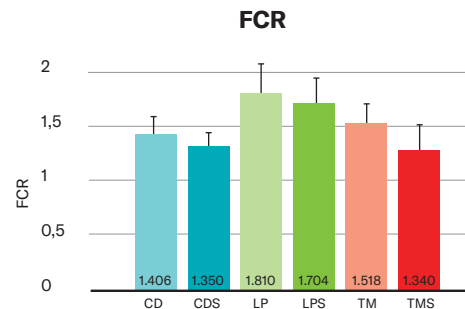
Increase of all Specific Growth Rate (SGR) with the **Sugarex®** added diets. It was also seen a significant increase of the SGR with the TMS diet (34.18%) (P = 0.018).



Increase of Feed Intake with the **Sugarex®** added diets. It was also seen a significant increase of the Feed Intake with the LPS diet (13.4%) (P = 0.024) and with the TMS diet (18,32%) (P = 0.006).



Increase of Specific Feeding Rate (SFR) with the **Sugarex®** added diets. It was also seen a significant increase of the SFR with the LPS diet (11.37%) (P = 0.019) and with the TMS diet (13.99%) (P = 0.006).



Decrease of all Feed Conversion Ratios (FCR) with the **Sugarex®** added diets (3.98% with CDS diet; 5.86% with LPS diet and 11.73% with TMS diet).

CONCLUSIONS

- This trial demonstrated that the use of **Sugarex®** in situations where palatability is compromised, such as low-palatable diets (LP) or medicated diets (TM), **can significantly improve production performance**.
- Notably, the inclusion of **Sugarex®** in the medicated feed (TMS) **resulted in performance outcomes that were nominally better than those observed with the unsupplemented control diet (CD)** tested in this study.
- In the case of the low-palatability formulation, **Sugarex®** supplementation had an immediate and measurable impact on fish behavior and growth performance. This finding is particularly relevant for feed producers, who often adjust formulations in response to fluctuations in ingredient supply and market prices—a practice that can temporarily reduce feed intake at the farm level. **Sugarex®** helps mitigate these challenges by minimizing the impact of such changes on production performance.

Aquabiotech, HTB05 report

HTBA is a world leader in natural flavonoids and B12 forms that creates a measurable impact on well-being through the power of nature.

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