FeedKind Protein Applications in Rainbow Trout

Developed in Norway, FeedKind *Aqua* protein was originally developed for the Atlantic salmon industry but represents an ideal high-protein feed ingredient for rainbow trout. With a nutrient density and amino acid profile comparable to fishmeal, FeedKind *Aqua* protein can easily be incorporated into diets for all life stages.[1] A proximate analysis of FeedKind *Aqua* protein can be seen in Table 1.

Table 1.

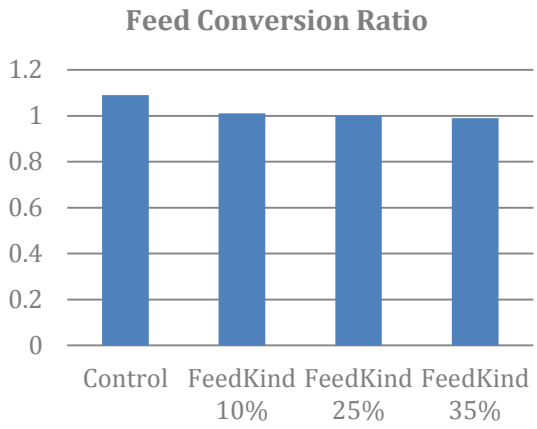
Proximate Analysis	
Crude Protein	>70%
Crude Fat	7-8%
Crude Fiber	<1%
Ash	7%
Moisture	5%
NFE	8-10%

FeedKind *Aqua* is a non-GMO single cell protein produced via natural fermentation. It is on the EU Catalogue of feed materials and is available year round from a state of the art production facility, reducing feed company supply chain risks.

Nutritional Value of Single Cell Protein in Rainbow Trout

Using material from the initial production of FeedKind protein from Calysta's UK facility, Calysta carried out a trial in Rainbow Trout (Onchorhynchus mykiss) with Pontus Research Ltd. The trial included a reference diet with 45 percent superprime fishmeal, and three treatments with 10, 20 and 35 percent FeedKind protein, each with corresponding reduction in fishmeal. Feeds were formulated by Pontus and manufactured by Sparos as extruded floating 2.5mm pellets.

Juvenile fish with an average weight of 62 grams, +/- 4.0 grams, were randomly assigned into groups of 30 individuals, each in 200 liter tanks maintained at 14 degrees Celsius. All fish were acclimatized for one week on the control diet then grown to a final weight of 187 grams on the control or test diets, fed five times daily to satiation with feed intake monitored.



Over 49 days, all groups had comparable growth rates ranging from 2.2 to 2.3 percent of body weight per day. No statistically significant difference was found between treatments. In addition, the distribution of individual growth rates was relatively narrow across all treatments, with the margin for error ranging from 0.05 to 0.08 percent. The control diet yielded a feed conversion ratio (FCR) of 1.09. This fell to 1.01, 1.00 and .99 in the 10, 20 and 35 percent treatments respectively. All treatment groups were statistically significant from the control diet, with FCR improved by eight to nine percent.

Improved digestibility and gut health in Rainbow Trout

The steady improvements in FCR are remarkable given the fact that growth rate is unchanged among the groups. The results here, as well as the previously observed impact on gut health of Atlantic salmon, are consistent with an improvement in gut health of the fish, potentially improving the function of an otherwise healthy digestive tract to increase overall nutrient retention and uptake.

Please contact Calysta at feedkind@calysta.com or +1(650)492-6880 to request samples or get more information.

[1] All measurements are on an as-is basis.