

## RESEARCH NEWS

### Rainbow Trout Fed Flax Oil Taste Good

Rainbow trout fillets derived from fish fed flax oil were equal in flavour, odour and overall acceptability to fillets derived from trout fed fish oil, according to consumers and trained taste panelists at the University of Saskatchewan.<sup>1</sup> Because the price of fish oil and fish meal has increased dramatically in recent years, the aquaculture industry seeks to replace fish oil with other oils in fish diets. The research team, headed by Dr. Murray Drew of the university's Department of Animal and Poultry Science, concluded that flax oil (or linseed oil, as it is called when added to fish diets) is a suitable vegetable oil replacement for fish oil in aquaculture diets.

The study was designed to assess the effects of four products added to fish diets: 1) commercial fish oil; 2) cold-pressed flax oil; 3) cold-pressed flax oil stabilized with added antioxidants; and 4) cold-pressed flax oil stabilized with added antioxidants and encapsulated in hydrogenated palm oil. The antioxidants were vitamin E (2500 mg/kg of oil) and BHT (4000 mg/kg of oil). Rainbow/steelhead trout were fed one of the diets for 168 days. Trout growth and physiology were not affected by replacing fish oil in the diet with any of the flax oil products.

The 12 taste panelists were trained in sensory evaluation over a period of 7 sessions and followed a standard protocol for rating aroma, flavour, firmness, juiciness and overall acceptability of steamed fish fillets. The consumer taste panel consisted of 43 members who were not trained. Both groups were asked to disclose their gender, smoking status, age group, frequency of eating fish and types of fish, if any, eaten.

Trained taste panelists rated steamed fillets from trout fed fish oil as having a fishy aroma and a slightly rancid flavour; they rated fillets from trout fed flax oil as having a slightly nutty or corn aroma. The trained panel gave fillets from trout fed flax oil a higher rating for overall acceptability compared with fillets from trout fed fish oil, although the difference between the groups was not significant. Fillets from trout fed flax oil were rated highest by consumers, being preferred over fillets from trout fed fish oil, stabilized flax oil or encapsulated flax oil.

This study's findings suggest that flax oil can be substituted for fish oil in aquaculture diets. Adding vitamin E and BHT to flax oil reduces the oxidation of its fatty acids during storage, thus making flax oil feasible for use in commercial aquaculture feeds.

#### Reference

1. Drew MD and Shand PJ. Strategies for utilization of linseed oil in aquaculture feeds. Report to the Flax Council of Canada, No. CRDPJ 323968-05, November 30, 2006.