

Abstract

Kürbiskernprojekt – Kainz (WasserCluster Lunz)

'Partial replacement of marine fish by pumpkin seed press cake in fish feeds for freshwater aquaculture – a test on *Salvelinus alpinus*'

Freshwater aquaculture feeds still rely heavily on additions of marine fish, although it is known that marine fish stock keeps declining worldwide and the price of marine fish oil continues to increase dramatically. The aim of this research project is to evaluate how the use of sustainable, locally produced fish feeds affect the somatic development and lipid quality (in particular omega-3 fatty acids) of arctic charr (*Salvelinus alpinus*) in aquaculture. This research will be conducted in a series of aquaculture tanks at two temperatures and different feed compositions, using pumpkin seed press cake as partial surrogate of marine fish. We test the hypothesis that the somatic development and lipid composition of arctic charr is independent of diet quality because all fish feeds contain, a) sufficient dietary energy to support somatic growth and, b) enough omega-3 fatty acids that allow arctic char to convert shorter chains to longer fatty acid chains (ability of char to trophically upgrade its diet). In collaboration with GARANT (only Austrian producer of fish feeds), veterinary medicine, international molecular lipid research (University of Stirling, Scotland), and testing fish for human consumption (University of Natural Resources and Life Sciences, Vienna), we strive for basic and applied scientific findings for, a) health, somatic development and biochemical lipid composition of alpine char, b) applicability of pumpkin seed press cake as partial replacement of marine fish for freshwater aquaculture fish feeds, and, c) optical and sensory quality of farm raised arctic char for human consumption.