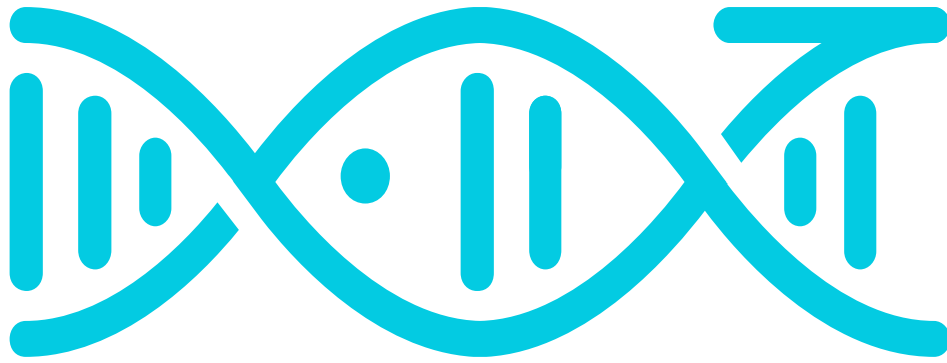


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SESSION 4
Ecophysiology and Aquaculture: finding the balance between yield
and sustainability

Dietary soy isoflavone supplementation in rainbow trout: tissue deposition and influence on fillet quality

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Isoflavones are polyphenols compounds contained in soybean that may act as estrogen receptor agonists or antagonists and potentially affect fish growth performance and fillet quality. A total of 54 rainbow trout (initial weight: 177 g) (18 trout per treatment) were fed three experimental diets containing different concentrations of isoflavones (0, 500, 1500 ppm) for 70 days. At the end of the trial, the quality of trout fillets was evaluated at 1 and 7 days of storage (27 trout per storage time). The levels of isoflavones in diets did not affect trout growth performance during the rearing period. Even biometric indexes, skin and fillet colour, rheological characteristics, proximate composition, fatty acids profile of fillet were not affected by the different dietary treatments. Otherwise, time of storage reduced fillet yield ($p < 0.01$), and skin lightness ($p < 0.01$); red index moved to more negative values (near-zero, however) and yellow index decreased ($p < 0.01$). Fillet pH ($p < 0.01$) and lightness increased ($p < 0.01$), yellow index ($p < 0.01$) and shear force decreased ($p < 0.01$). According to the time of storage, trout fillet showed an increase of water, a loss of crude protein and an increase of total volatile basic nitrogen content ($p < 0.01$). As a result of PUFAs omega-6 decrease ($p < 0.05$), omega-3/omega-

6 ratio increased ($p < 0.05$) during storage. The fillet analysis evidenced an accumulation of isoflavones influenced both by dietary isoflavone content ($p < 0.05$) and refrigerated storage time ($p < 0.05$) while fillet lipid oxidation measured by means of thiobarbituric acid reactive substance assay was only affected by the storage time ($p < 0.05$). In conclusion, although a transfer of isoflavones from diet to fillet was observed, rheological and nutritional characteristics, as well as fillet quality were not affected by dietary treatment.