

Title Colour changes of fillets of rainbow trout (*Oncorhynchus mykiss* W.) fed astaxanthin or canthaxanthin during storage under controlled or modified atmosphere

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Abstract

Rainbow trout were fed diets containing two levels of lipids (9 g/100 g and 24 g/100 g) associated with two keto-carotenoid pigments (80 mg of astaxanthin or of canthaxanthin/kg of diet) for 4 months. After slaughter colour stability of fillets was studied during a 4-week storage at +4 °C under controlled (CA) and modified (MA) atmospheres under 100% air, 60:40 N₂-CO₂ mix and 60:40 air-CO₂ mix. Fillets from fish fed high fat level diets showed higher chroma and higher a^* and b^* colour parameters than those from fish fed low fat level diets. Storage time increased lightness and hue angle in CA but only lightness under MA. After storage at +4 °C lightness of fish fillets stored under MA were lower ($P<0.05$) than those stored under CA. Carotenoid source resulted in differences in chroma and hue angle of fish fillet stored under CA and MA. Dietary lipid levels resulted in differences in chroma under CA. Under CA the lower ($P<0.05$) differences between stored-initial values was for N₂-CO₂ and the higher ($P<0.05$) for air. Under MA, air-CO₂ and N₂-CO₂ gave similar results for L^* , C^* and $H(^{\circ})_{ab}$. Our experiment demonstrated that colour parameters of fish fillets reacted differently according to gas mixture and storage time.