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Compiled by:

Elin Kjørsvik and Selina Stead

Layout and processing:

S. Vanroose, H. Joncheere and L. Aspeslagh



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EFFECT OF STARVATION BEFORE SLAUGHTERING TO KEEP FRESHNESS ATTRIBUTES IN GILTHEAD SEA BREAM (*SPARUS AURATA*)

R. Ginés¹, M. Palicio¹, A. Rueda², M. Marrero², A. Argüello¹, M.J. Zamorano¹, V. Oliva¹, J.M. Afonso¹ and J.L. López¹.

¹Unit of Animal Production. Universidad de Las Palmas de Gran Canaria. Trasmontaña, s/n. 35416 Arucas (Las Palmas). Spain.

²ADSA. Prolongación Bentejui, s/n. Castillo del Romeral. 35107 San Bartolomé de Tirajana (Las Palmas). Spain.

Introduction

Starvation before slaughtering, like handling practise at fish farms, it is routinely used in farmed Atlantic salmon to improve freshness quality (Blokhus, 1986), showing a higher organoleptic score starved than not starved fish, both stored in melting ice until 24 hours after slaughtering. In this sense, Einen and Thomassen (1998) also reported significant differences on flesh texture of Atlantic salmon, but it was necessary a starving period for at least four weeks to detect them. An important effect of starvation is a higher ratio of insoluble collagen (Borderías et al., 1999), giving a more flesh firmness in starved fish. For that, since less flesh firmness is associated to less freshness, the aim of this study was to determinate the effects of starvation time on texture and other important quality parameters.

Materials and Methods

The study was carried out on 360 gilthead sea bream (*Sparus aurata*) reared at a commercial fish farm (Alevines y Doradas, S.A.) located in the south of Gran Canaria Island (Canary Islands, Spain). Fish were caught in accordance with farm planning from five different rearing groups. Three different periods of starving before slaughtering (1, 4 and 7 days) were compared in relation to keep freshness attributes during storage on ice. Several parameters were measured like pH, skin and fillet colour (L^* , a^* , b^*), instrumental texture in whole fish (Urbieta and Ginés, 2000) and fillets (Borderías et al., 1983), enzymatic activity and protein solubility. Analysis were made at 2, 4, 7 and 11 days after slaughtering.

Results

In relation to instrumental texture parameters, the period of starvation showed a significant effect ($P < 0.001$) on puncture of whole fish, increasing maximum force from 13.09 ± 0.40 N to 16.74 ± 0.43 N respectively at 1 and 8 days of starvation before slaughtering. Others texture parameters, flesh puncture and flesh compression, did not show statistical differences between groups, although fillets from fish starved 8 days needed a higher force to be deformed.