

Effect of Slaughtering Methods on Stress and Quality of Caged Bluefin Tuna (*Thunnus thynnus*)

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Abstract

Food quality is perceived as a global concept. Some aspects, such as environmental protection and animal welfare are assuming an increasing interest, owing to the development of the consumer awareness for health and environmental problems (Ashley 2007). Interest for farmed animal welfare is rapidly growing, not only as consequence of consumer awareness, but also for the strong evidences of its effect on quality of both terrestrial or aquatic farmed animal (Ashley 2007).

Among aquaculture species, tuna fish fattening was developed to obtain high quality product in order to satisfy the demand of Japanese market, which consumes 99% of the product (FAO/GCM/ICCAT, 2005; Santulli, 2005).

Because of the initial steps of the rearing process, such as the recruitment of the specimens, the transfer and maintenance in cages, the fattening process, are well established, together with the environmental control (FAO/GCM/ICCAT, 2005; Santulli, 2005), our attention was directed toward the last phase of the rearing process.

Unlike culture methods that were developed to minimize stress, fish slaughter technology evolved to achieve product quality control, efficiency, and processor safety.

Ante-mortem isolation and slaughtering procedures influence reared fish, according to stress length and species susceptibility, determining negative effects on fish welfare and quality of the product (Ashley 2007).

As a general term of reference, an optimal slaughter method should render fish unconscious until death without pain or suffering prior to killing; furthermore, it is likely that human slaughter procedures could improve post mortem quality of fish, as reported for warm-blooded animals by many authors (Ashley 2007).

Poor information on the effects of stress induced by slaughtering on tuna quality and its shelf life are available (Lowe et al., 1998; Garcia et al., 2002; Takii et al., 2005; Poli et al., 2005; Soto et al., 2006). To improve the quality of the productive cycle, we investigate the effects of two different slaughtering methods on stress and quality of caged bluefin tuna.

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