

DIGESTIVE AND METABOLIC UTILIZATION OF DIFFERENT DIETS BY GILTHEAD SEABREAM (*Sparus aurata*); ENVIRONMENTAL IMPLICATIONS

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In recent years, increasing attention has been paid to environmental aspects of intensive systems of fish culture. Thus, for a correct valuation of a new feed, it must be taken into account, not only its nutritional value but also nutrients discharge to the medium as a result of its utilization. In this sense, N. Losses of a given feed will be low when rates of food utilization, both digestive and metabolic, are high, resulting in a low production of faecal and dissolved N.

In the present work, a 2 week experiment including determinations of dissolved ammonia (DA) and faecal contents in N has been performed, as a part of a more complete nutritive evaluation of two vegetable protein sources (lupin and soybean meals) in feeding of gilthead seabream. This way, the objective was to correlate different parameters of nutritive utilization to measures of N discharge into the water.

A total of 7 experimental diets were assayed in triplicate. Diets were obtained by including 10, 20 or 30% of total protein in the form of either soybean meal or lupin seed proteins. A diet including only fish meal was used as control. Feeds were carefully supplied twice a day, prior to cleaning of the tanks, in order to ensure no existence of remaining food at the bottom. Faecal samples were recovered. at 24 h intervals, whereas water sampling for DA was carried out every two hours, for a 8-hours period, in two separate days. Data of nutritional evaluation of the experimental diets were obtained from a previous work.

Results showed a different pattern of ammonia excretion, as well as about a 50% higher production of DA, for those fish fed on diets including vegetable proteins when compared with control fish. Such results would be indicative of a very fast deamination of excess of non essential amino acids in the case of diets including vegetable protein. This deamination would not be related to a poor quality, but to a excess of dietary protein, considering that previous nutritional evaluation showed no significant differences among diets.

It is concluded that some diets offering valuable results from a nutritional point of view, may be not adequate in practice, considering the environmental N load derivate from it use.