

# Dietary supplements and pro-opiomelanocortin in *Siniperca chuatsi*—Letter to the Editor

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Preparing Volume II of my *Aquatic Animal Nutrition* (Steinberg, 2018), I came across an appealing paper in *Aquaculture Research*, entitled ‘Effect of feeding stimulants on growth performance, feed intake and appetite regulation of mandarin fish, *Siniperca chuatsi*’ by Li et al. (2019). I have become acquainted with this hard-to-farm top predatory fish during my stays in Wuhan at the Institute of Hydrobiology of the Chinese Academy of Sciences and at the Huazhong Agricultural University. Furthermore, this paper fits very well into Volume II dealing with *Organic Macro- and Micro-Nutrients*, since the authors supplemented inosinic acid, L-alanine, yeast extract, squid extract and betaine to artificially feed for the mandarin fish. The authors showed that one supplement significantly and one tended to upregulate the neuropeptide Y (NPY) (fig. 1 in Li et al. (2019)). NPY is a neurotransmitter in the brain and in the autonomic nervous system of animals; one of the strongest orexigenic signals (Ballinger et al., 2001). More interestingly, the authors tested also pro-opiomelanocortin in dependence of feed supplementations and found that all supplementations significantly reduced its expression (fig. 2 in Li et al. (2019)). Pro-opiomelanocortin is a precursor polypeptide in which cleavage gives rise to several peptide hormones. POMC neuron stimulation results in satiety. Therefore, POMC is an anorexigenic, rather than an orectic neuropeptide in mammals and fish (Li et al., 2005; Mineur et al., 2011; Volkoff et al., 2005). However, Li et al. (2019) wrote that POMC has been approved as an orectic neuropeptide in mammals and fish (Volkoff et al., 2005). This contrasts the review about neuropeptides and the control of food intake in fish by Volkoff et al. (2005) who classified POMC as anorexigenic factor and summarized it in fig. 1. This classification complies well with further studies in mammals (Krude et al., 2003; Li et al., 2005; Mineur et al., 2011; Mostafa et al.,

2020; Williams & Schwartz, 2005). This indicates that more dietary supplements identified by Li et al. (2019) appear to have the potential to function as feed attractant and dietary supplement for *S. chuatsi*.

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