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Title: **Effects of Different Dietary Lipid Sources on the Survival, Growth, and Fatty Acid Composition of South American Catfish, *Pseudoplatystoma fasciatum*, Surubim, Juveniles**

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Abstract: The present study examines the effect of four semi-purified diets (casein–gelatin based) where the source of fatty acids was free (esterified) oleic acid and linoleic acid (LA) (LOA diet), linseed and olive oil (predominantly LA and linolenic acid) (LO diet), cod liver oil (rich in highly unsaturated fatty acids) (CLO diet), and soybean lecithin (phospholipids; mostly LA) (LE diet) on the growth of juvenile South American catfish (surubim, *Pseudoplatystoma fasciatum*, Pimelodidae) (0.98 ± 0.04 g individual weight). Fish were fed at a restricted–readjusted feeding rate for 8 wk. At the end of the experiment, LE-diet-fed fish grew significantly larger than those of the other three groups ($P < 0.05$). Considerable cannibalism was observed in all the treatments. It is suggested that the quantitative growth performance may possibly change under other conditions, with less or no cannibalism. Survival did not differ significantly among the fish fed four different diets. Muscle and liver lipid contents did not vary among dietary treatments ($P > 0.05$), but whole-body lipid concentrations were affected by dietary treatments. Fish fed LE diet contained significantly lower lipid level than those fed three other diets ($P < 0.05$). Muscle and liver fatty acid profiles reflected dietary fatty acid composition. Arachidonic acid level was significantly higher in muscle and liver of fish fed LOA and LE diets than in those fed LO and CLO diets. The results suggest that the efficiency of elongation and desaturation of 18C fatty acids depends on the dietary lipid

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source, and South American catfish has considerable capacity to transform linoleate to arachidonate.

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