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Dietary contributions of phytoplankton and zooplankton to the young silver carp, Hypophthalmichthys molitrix

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The growth of 2-month silver carp, Hypophthalmichthys molitrix, was induced with seven algal species and zooplankton (Moina macrocopa >200m) in the laboratory. The carps were reared in 10 L translucent cylindrical aquaria with algae and zooplankton for 7-8 days. The Moina decreased almost algae, while perfectly removed Cryptomonas (NIES-282) within 60 min. As suggested, both diets, Cryptomonas and Fragilaria (NIES-391) highly developed the Moina population (r²>0.93, p<0.005), while Microcystis (NIES-90) and Oscillatoria (NIES-204) significantly reduced the zooplankton (r²=0.97, p<0.001). Fish removed about 50% of all algae for 52 hrs, even 60 % of Microcystis still remained: all algae reduced ca. 5%-12 % of initial weight. Furthermore, a continuous supply of algae with same density resulted in the death of fish, e.g. 11 days in cyanobacteria Microcystis. Therefore, the growth limitation of silver carp by algae indicates that zooplankton is of direct dietary contributor in planktivores feeding behavior.