



Rose Petal Meal as a Potential Natural Carotenoid Source for Pigmentation and Growth of Freshwater Ornamental Fish, Koi Carp, *Cyprinus carpio* (Linnaeus)

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Abstract: An experimental study was conducted to assess the efficacy of experimental diets supplemented with natural carotenoid source i.e. rose petal meal (RPM) @ 1, 3, 5 and 7 % with respect to pigmentation, survival and growth in freshwater ornamental fish koi carp, *Cyprinus carpio* (Linnaeus) for 120 days. Five diets including one control (RPM0) without carotenoid source and four experimental supplemented pelleted diets with 1 % (RPM1), 3% (RPM3), 5 % (RPM5) and 7 % (RPM 7) of powdered rose petals in control diet were prepared. At the termination of the experiment, colouration studies indicated significantly higher ($p \leq 0.05$) skin and muscle carotenoid ($\mu\text{g g}^{-1}$ wet weight basis) content in fish fed with RPM3 (3.04) followed by diet RPM5 (2.74), RPM1 (1.96), RPM7 (1.95) and RPM0 (1.24). RGB colour intensity based on digital photographs analysis was also found to be maximum in RPM3 followed by RPM1 & RPM7, RPM5 and RPM0. Fish growth in term of % NWG, PER and SGR was maximum in RPM1 (119.36 %, 0.79, 0.66) and minimum in RPM0 (71.74 %, 0.37, 0.45). Further, supplementation of RPM @ 1 % (1.98) in koi carp diet also improved the FCR by 2.0 folds as compared to control (4.17). 100% survival of fish was recorded with diets supplemented with RPM1 and RPM3, while it was 90 % in RPM5 and RPM7 and 80 % in RPM0. During the experimental period, all the water quality parameters did not vary significantly in the treatments and remained in optimum range for fish growth. Hence, rose petal meal can be used up to 3 % in diet of ornamental koi (*C. carpio* L.) both as growth promoter and colour enhancer for enhanced commercial value.

Key Words: Carotenoids, Koi carp, Colour enhancement, Pigmentation, Rose petal meal