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# "STUDY OF SOME REPRODUCTIVE CHARACTERISTICS AND FEEDING OF *CYPRINUS CARPIO-L"*

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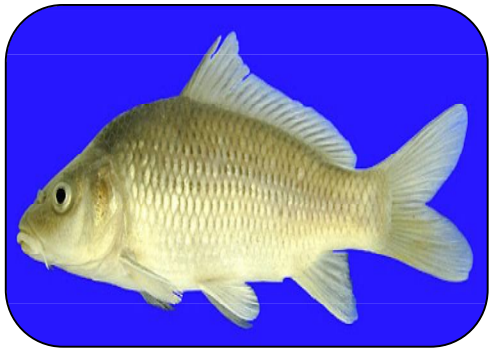
## ABSTRACT



*This study investigates the reproductive characteristics and feeding habits of Cyprinus carpio (common carp) in its natural habitat. The reproductive behavior, including spawning season, fecundity and egg size, was examined through field observations and laboratory analysis. Additionally, the feeding habits of C. carpio were studied to understand its dietary preferences and feeding patterns. The findings reveal that C. carpio exhibits distinct reproductive behaviors, with spawning occurring during specific seasons characterized by optimal environmental conditions. Fecundity was determined through examination of mature females and egg size was measured to understand reproductive output. The study also highlights the importance of environmental factors such as temperature and water quality in influencing the reproductive cycle of C. carpio.*

**KEYWORDS**: *Cyprinus carpio, reproductive characteristics and feeding habits.*

## INTRODUCTION:

Aquaculture has risen as one with the most potential and fastestgrowing sectors in feed production. It supplies high-quality animal protein and generates revenue and employment all over the world (Vaseeharan *et al.* 2003). According to world aquaculture society, fish production from aquaculture increased by more than 5.4 percent over the previous three years, according to a research by World Aquaculture. India's aquaculture business has grown by more than six and a half times in the past two decades, with fishery contributing for more than 95% of total aquaculture production (FAO 2020).

The study of reproductive characteristics and feeding behavior in aquatic organisms plays an essential role in understanding the ecology and sustainable management of aquatic resources. Specifically, the study of *Cyprinus carpio-L*, commonly known as the common carp, has attracted significant attention in the scientific community due to its economic and ecological importance. This essay explores the historical context, key figures, impact, influential individuals, various perspectives and potential future developments related to the study of reproductive characteristics and feeding behavior in *Cyprinus carpio-L.*

The study of reproductive characteristics and feeding behavior in *Cyprinus carpio-L* dates back several decades. Early accounts of carp studies primarily focused on their cultivation and aquaculture

practices in Europe. Notable figures during this period include Rudolf Schneider, a German scientist who conducted one of the first comprehensive studies on the reproductive biology of the common carp in the 19th century.

Schneider's work paved the way for future researchers to investigate the reproductive characteristics of *Cyprinus carpio-L*. His studies highlighted the carp's spawning behavior, the role of environmental factors, and the potential for artificial reproduction. These findings laid the foundation for subsequent research in this field.

## MATERIALS AND METHODS :

Selection of suitable freshwater habitats known to be inhabited by *Cyprinus carpio* (common carp) based on literature review and consultation with local authorities. Criteria for site selection included accessibility, water quality and presence of *Cyprinus carpio* populations. Morphometric studies were done at the beginning of the experiment and after every two weeks throughout the experimental period. For haematological, biochemical and whole body proximate analysis, the fishes were sampled at the beginning of the experiment, after 4 weeks of starvation and after 8 weeks and 12 weeks of experiment. Enzyme analyses were carried out at the beginning of the experiment, after the starvation of 4 weeks and after 8 weeks of refeeding.

During the acclimation, period all the fishes were hand fed to satiation until they showed no more interest towards the feed. They were fed two times a day at 9:00hrs and 16:00 hrs. The carp feed was procured from Thiruvallur. The proximate analysis of the feed used for the present study was done according to methods of AOAC (2000) and was found to contain 33.03% crude protein, 12.65% lipid, 7.99% moisture 3.59% crude fiber and 11.90% ash content. During the experimental period, Group I alone was fed to satiation throughout the experimental period, while Group II, Group III and Group IV, were starved for 4 weeks and refed for 8 weeks. During the two months of refeeding, all the group of fishes was fed a pre-weighed amount of feed to satiation twice a day (09:00 hrs and 16:00hrs). Uneaten food was removed by siphoning and was dried at 1050C for 6 hours and deducted from the feed given to the fishes, to calculate the feed consumed by the fishes. All the data were subjected to statistical analysis using Analysis of Variance (ANOVA) using SPSS statistical software. Tuckey's post Hoc test was used to evaluate the mean difference among individual groups at the 0.05 significance level.

## RESULTS AND DISCUSSION :

Three native big carps and three exotic carps make up the majority of Indian aquaculture production. *C. carpio*, known as common carp, is a major candidate species among exotic carp, with a global output of around 3.7 million tonnes in 2010-11 (FAO 2011). The common carp (*C. carpio*) belongs to the cyprinid order and the Cyprinidae family, which is the biggest freshwater fish family. It rarely lives in brackish water conditions, but prefers freshwater environments particularly ponds, lakes and rivers (Barus *et al*. 2002). It is the third most widely cultivated commercial aquaculture species in Asia and certain European nations due to its excellent adaptability to both the environment and food (Rahman 2015).

Fish nutrition as well as disease and health management are two of the most significant barriers to further expansion. Even though aquaculture is actively developing vaccines and promoting immunizations, infections continue to be a major concern for the fish farming sector (Bondad-Reantaso *et al*. 2005). Because of the aquatic environment, which makes fish particularly sensitive to pathogens, the industry's long-term development necessitates enhanced disease and health management (Turnbull 2012).

In Algeria, the first description of *C. carpio* has considered the species as a new, even it was introduced in Algeria between the period of 1858 and 1931 (Dieuzeide & Rolland 1951; Kottelat 1997; Kara 2012). Also, it is one of the most commercially important and widely cultivated freshwater fish in the world (Biro 1995; Zhou *et al.* 2003). In aquaculture, this species ranked in 2010 third in terms of worldwide finfish aquaculture production, contributing 9% of the world's total finfish aquaculture production, since Asia accounted for more than 90% and China alone contributed 77% (2.462.346 tons)

of the world's aquaculture production of common carp (3.216.203 tons) in 2009 (FAO 2012). The description of *C. carpio* diet was well documented by many authors around the world, such as those in France (Crivelli 1981), Spain (Blanco *et al.* 2003), Turkey (Ali *et al.* 2010), Ethiopia (Dadebo *et al.* 2015) and India (Shafi *et al.* 2012)

Dadebo *et al.* (2015) has evidenced that this species feeds on detritus, insects, macrophytes, phytoplankton, ostracods, zooplankton and gastropods in Ethiopia. Also, Crivelli (1981) has described the diet of this species in France and reported that benthic insects, crustacea and detritus are the main prey. Mustafizur *et al.* (2010) found remarkable differences in the feeding condition of *C. carpio* depending to its diet and seasonal feeding activities. Moreover, Ali *et al.* (2010) have reported that this variation in the types of organisms consumed is likely due to the location changes of the species in certain periods for feeding purposes.

## CONCLUSION:

In conclusion, the study of reproductive characteristics and feeding behavior in *Cyprinus carpio-L* has a rich historical context, with notable figures who have made significant contributions to this field. The impact of their research has been instrumental in advancing aquaculture practices, fisheries management and conservation efforts. Understanding the various perspectives, both positive and negative, is crucial to improve the sustainability and management of common carp populations. With continued research and future developments, the study of *Cyprinus carpio-L* will continue to contribute to our knowledge of aquatic ecology and resource management.

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