

ORL-AAQ-14**Effect of integrated Bio-char Bedding Materials with Microbial Consortia on Carp Polyculture**

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The present study was conducted for 90 days from November 2023 to February 2024 in a complete randomized design (CRD) to determine the effects integrated bio-char bedding materials with microbial consortia for improved fish productivity and water quality. Six different treatments having T1- Supplementary feeding +No fertilizer, T2- Supplementary feeding + Fertilizer (FYM, Urea and DAP), T3- Supplementary feeding +Bedding (Char, Bone Meal and Stone Dust), T4- Supplementary feeding +Bedding (Char, Bone Meal and Stone Dust) +fertilizer (FYM, Urea and DAP), T5- Supplementary feeding +Bedding (Char, Bone Meal and Stone Dust) + Microbial consortia (C4), T6- Supplementary feeding +Bedding (Char, Bone Meal and Stone Dust) + fertilizer (FYM, Urea and DAP) + Microbial consortia (C4) with Common carp, Sliver carp, Rohu and Naini polyculture were established.

At the end of the experiment, the mean final weight ($138.1 \pm 2.6\text{g}$), mean individual weight gain ($57.7 \pm 4.3\text{g}$) and mean growth rate of fish ($0.64 \pm 0.04\text{g/fish/day}$) in T5 were significantly higher ($P < 0.05$) than other treatments. There was no significant difference in the mean survival rate among different treatments. Similarly, T5 exhibited significantly higher ($P < 0.05$) the net fish yield ($1.09 \pm 0.23\text{kg/tank}$) and extrapolated net fish yield ($1.36 \pm 0.29\text{kg/hac}$) than T1 and

T2 with no significant difference than T3, T4 and T6. Again, water quality parameters were observed during culture period. The mean temperature and pH were found within the acceptable range. The mean dissolved oxygen ($8.3 \pm 1.2\text{mg/L}$) was significantly higher ($P < 0.05$) in T4 than T2, T3 and T5 with no significant difference than T1 and T6. The mean ammonia ($0.32 \pm 0.42\text{mg/L}$) was significantly higher ($P < 0.05$) in

T3 than T4 and T6 with no significant difference than T1, T2 and T5. The mean nitrate ($3.74 \pm 1.18\text{mg/L}$) was significantly higher ($P < 0.05$) in T2 than T1 with no significant difference than T3, T4 T5 and T6. The mean nitrite ($0.33 \pm 0.34\text{mg/L}$) was significantly higher ($P < 0.05$) in T6 than T1, T3, T4 and T5 with no significant difference than T2.

Based on the results of present experiment it was concluded that the T5- Supplementary feeding +Bedding (Char, Bone Meal and Stone Dust) + Microbial consortia (C4) will be a viable option for better growth in carp polyculture.

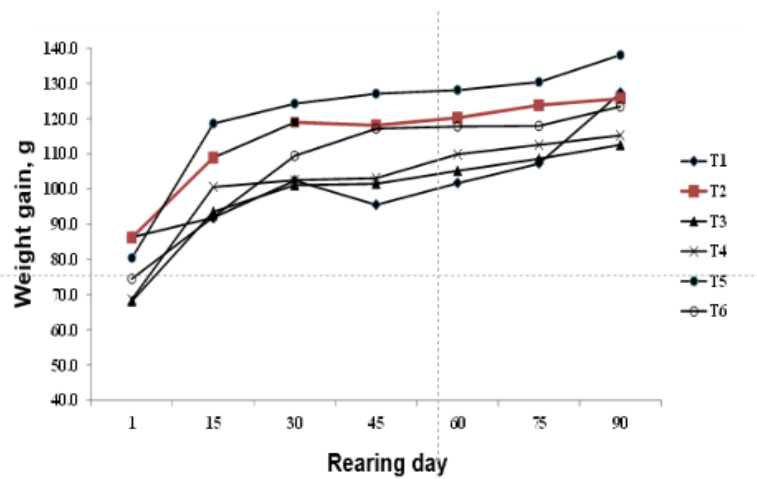


Figure: Fish growth in different treatments during study period