

**Study on Tubificid Worm (*Tubifex tubifex*)
Production and its Effect on Growth of
Three Selected Ornamental Fishes at
RDA, Bogura**

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Mr. Md. Ashraf Alam has been working as Assistant Director in Rural Development Academy (RDA) since October 2017. He has completed his B. Sc. Fisheries (Hons.) from Hajee Mohammad Danesh Science and Technology University, Dinajpur, and M. S. from the Department of Fisheries Biology and Genetics, the same university. Mr. Alam was awarded the "Prime Minister Gold Medal" by honorable Prime minister Sheikh Hasina, the Peoples Republic of Bangladesh, in 2016 for his Excellencies in the academic result. He received the International Union Conservation of Nature (IUCN) Bangladesh award to conserve indigenous threatened fishes in Northwest Bangladesh in 2014 from his research team. Besides other activities, Mr. Alam is also working as the unit in-charge of the Fisheries Unit. As a fisheries unit in-charge in RDA, he looks after the induced breeding, nursing, and culture of indigenous and demandable exotic fishes. He has conducted different types of research related to fisheries and rural development. The first time he was able to successfully nursing of carp in biofloc. Besides, he arranged a lot of training programs, including improved fish culture technology that was helpful to enhance the skill of fish farmers. His interests include aquaculture, hatchery management, fish breeding, nursery management, fish biodiversity, biofloc technology, etc. Currently, he has thirteen publications in national and international journals.



At present, **Mr. Macksood Alam Khan** is serving as the Director (In-charge) of Project Planning and Monitoring Division of Rural Development Academy (RDA), Bogura. He has completed B.Sc. Fisheries (Hons.) and M.S in Fisheries Management from Bangladesh Agricultural University, Mymensingh. Later on, he did second Masters's Degree from the University of Kent, UK on Conservation and Rural Development. He is also a PhD Research Fellow in Department of Fisheries Management under Bangladesh Agricultural University (BAU), Mymensingh. Title of the PhD research is - Reproductive biology of endangered mud eel *Monopterus albus* (Final dissertation accepted by CSAR, awaiting for approval of BAU Syndicate). At RDA, he is involved in planning, designing, and organizing training courses and conducting research and piloting projects, especially on fisheries and the rural development sector. Besides, he looks after the Fisheries Unit of the RDA Demonstration farm and supervises aquaculture, breeding, and spawn production of commercial fish species of carps, catfishes, All Male (Mono-sex) Tilapia. He has also initiated several activities towards conserving the natural environment and launched Ecotourism program at RDA with the slogan 'Green RDA, Clean RDA'. So far, he has ten research publications, of which four are Journal articles, and the rest are research reports. He was born in Bogura district.



Dr. Md. Nurul Amin completed his M.Sc. and B.Sc. (Hons.) in Fisheries in 1986 and 1985 respectively from Bangladesh Agricultural University, Mymensingh and he obtained PhD from Jahangirnagar University, Savar Dhaka. He joined at Rural Development Academy (RDA), Bogura in April 1993 as Assistant Director (Fisheries). Now he is a Director of RDA. So far Dr. Amin has conducted about 20 researches and he has 16 research publications and 04 journal articles related to fisheries and other development aspects. Some of his major studies include: 1) Impact of Improved Fish Culture Technology Transfer Training Course (1998), 2) Impact of Fish Diseases on Fish Culture in the Northern Region of Bangladesh (2000), 3) Commercial Fish Farming in Bangladesh: Opportunities and Challenges (2011), 4) Study on Growth Performance and Profitability of Mono-sex Tilapia Cultivation in Pond, 5) Dissemination of Seed Production and Culture Technique of Pabda (*Ompok pabda*) and Gulsha (*Mystus bleekeri*) using BFRI Technology at RDA, Bogura. He completed impact evaluation of many programmes and projects of GoB with multidisciplinary research team. He has working experience with World Fish Centre, BFRI, World Vision and so on. Dr. Amin worked successfully as the In-charge of RDA Demonstration Farm for many years. The Fish Hatchery Unit of RDA has been established and successfully operating under his guides and supervision.

EXECUTIVE SUMMARY

The demand for sludge worms, Tubifex tubifex, increases with the growth of aquaculture as low-cost live feed in hatcheries and ornamental fish nurseries. The study was conducted to determine the optimal culture medium for T. tubifex worms production and determine the inclusion effects of worms as feed on ornamental fish rearing. Three media-based treatments (T-1, T-2, and T-3) with three replications were used to culture the worms for 100 days in nine cemented culvert system (160×25×10 cm³). The growth performance of three popular ornamental fishes, koi carp (Cyprinus carpio), comet goldfish (Carassius auratus auratu) and goldfish (Carassius auratus), was determined by replacing the commercial feed at a different level with tubificid rearing in a fibreglass aquarium (45×30×30 cm³) for 32 days duration. Maximum yield (959.23 44.34 mg.cm⁻²) of tubificid biomass was recorded in T-2 (mustard oil cake-10%, wheat bran-10%, soybean meal-10%, rice bran-10%, straw-5%, fish scale, intestine, stomach and fin-25%, cow-dung-20%, mud collected from fish pond-10%) with a peak at day 70th. The fish fed with 50% commercial feed + 50% T. tubifex in TF-2 showed significantly ($p<0.05$) higher growth and survival performance than two other treatments. The mean water quality parameters were statistically insignificant ($P>0.05$) among the three treatments. Approximately 1.83 kg media were needed to produce a 1.0 kg tubificid worm in treatment T-2. T-2 media is recommended as suitable media for commercial tubificid worm production and the inclusion of 50% tubificid worms in the feed can be suggested for ornamental fish rearing.

KEYWORDS: Live feed, growth parameters, sludge, FCR.