Identification and future prospect of some ornamental fishes in Bangladesh

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Abstract: The keeping of ornamental fishes is increasing day by day in most parts of Bangladesh. For this research paper, pet shops in Khulna, Kushtia, Rajshahi, Rangpur, Saidpur, Dinajpur and Dhaka of Bangladesh were studied by the first author. The results suggested that out of 34 varieties of ornamental fishes, they were either exotic or indigenous (Dwarf Gourami, Albino Catfish), with most of them being included in the order Cypriniformes; this was presumably because their longevity, colouration, feeding, behaviour were more striking and therefore more popular than the other fishes. The nine fish families were as follows: Cyprinidae, Osphronemidae, Poeciliidae, Characidae, Pangasiidae, Loricariidae, Clariidae, Osteoglossidae, Cichlidae, grouped within seven orders (viz. Cypriniformes, Cyprinodontiformes, Characiformes, Siluriformes, Anabantiformes, Osteoglossiformes, Cichliformes). 11 varieties of goldfish were examined, viz. Goldfish, Comet, Red-cap, Black Moor, Lion-head, Fantail Goldfish, Bubble-eyed, Calico Ryukin, Telescope Goldfish, Oranda and Shubunkin. There were four gouramis detected, viz. Dwarf, Blue, Golden and Striped. The Cyprinodontiformes was the second highest order in terms of ornamental fish species numbers. Only one species were found within the Osteoglossidae and Cichlidae families.

Keywords: Ornamental fishes, goldfish, identification, Katabon market, prospects, Bangladesh.

Introduction

Now-a-days farmers are more interested to diversify their businesses and to undertake new ventures such as crocodile culture, pearl culture, aquarium fish trades, etc. (Mostafizur *et al.,* 2009). The aquarium or ornamental fish business is becoming very popular throughout the world because of its easy operating system and lower operating costs. Beyond sales of aquaria, air pumps, food, medications and other supplies, the primary product of the aquarium industry is fish. The aquarium fish trade is an expanding multi-million dollar market with considerable growth in the last two decades (Cheong, 1996). USA, Europe, and Japan are the largest markets for aquarium fish but more than 65% of the exports come from Asia. Although Bangladesh has huge resources it is still in a marginal position (Mostafizur *et al.,* 2009) and the majority of the pet shops selling aquarium fish are located in Dhaka city (Galib, 2010). But it is good news that cultivated fish trade is currently developing in Bangladesh (Mostafizur *et al.,* 2009; Galib *et al*., 2013). Due to increasing demand, aquarium fish culture began in mid 1980, at Kataban in Dhaka (Mostafizur *et al.,* 2009). Galib (2010) found that at least 30 aquarium shops were available in the Kataban market of Dhaka city where all kinds of aquarium products can be purchased. A total of 78 varieties of exotic ornamental fishes were identified within 45 species, 41 genera (excluding 2 crossbred), 18 families, 5 orders (Galib, 2010). The majority of fishes were introduced from Thailand but no true quarantine measures were undertaken at the time of introduction. Catfish, Tetra, Plecos, Hatchet-fish, Danio, Rasbora, Barb, Gourami, Pencil-fish, Guppy, Platy, Molly, Loach, and Rainbow-fish are considered to be community fishes. If native fishes as well as other ornamental fishes imported from various countries are extensively bred and sold in Bangladesh, this action may build economically viable ornamental fish hatcheries and therefore produce commercially ornamental fry. These will increase job opportunities and employment of many people and add to the GNP of the country. The objective of this study is to define and publicise the ornamental fish business of Bangladesh.

Fig. 1. (Left) Dwarf Gourami, *Trichogaster lalius* (Hamilton, 1832)(from Wikipedia, 2021a).
Fig. 2. (Right) Black Molly, *Poecilia sphenops* (Valenciennes, 1846)(from https://acvaiasi.wordpress.com/2009/07/15/short-finned-molly-poecilia-sphenops/(see also Wikipedia, 2021b).

Brief notes on the aquarium

A strong wooden box will be sufficient to hold up an aquarium or concrete blocks or concrete frame can be used. Aquaria can be partially concrete as well. A wooden box can sustain three times the weight load than the weight of an aquarium with water. The hardness and pH of water are very important during maintaining an aquarium; pH needs to checked once a month. In breeding tanks, these water hardness and pH need to be determined once a week. 1 litre water of aquarium requires 0.5 watt of light in the summer season and 1 watt of light in winter. A temperature of 24-26° Celsius is effective in the aquarium all the year-round. *Hydra*, Leeches, and Water-tigers (predacious larvae of Dytiscidae, Coleoptera) are the common enemies of ornamental fishes (Talukder, 1997).

Fig. 3. (Left) Common Platy, *Xiphophorus maculatus* (Gunther, 1866)(from Wikipedia, 2021c).
Fig. 4. (Right) Zebra Fish, *Danio rerio* (Hamilton, 1822)(from Wikipedia, 2021d).

Ornamental fish and pet shops in some parts of Bangladesh

The company known as *'Green Lover Corner'* of Bangladesh first exported ornamental fishes during 1993. Pet shops in Khulna were the first in Bangladesh to observe ornamental fish species and their management. High-standard aquarium are available at Dhaka, Bangladesh. The breeding technology of several fish species has been developed and practiced in Khulna city; this enhanced the supply and reduced the retail price (Galib *et al.,* 2013). The Kushtia district of Bangladesh teemed with Goldfish, Black Moor, Fighter, Guppy, Angel-fish and sucker-mouth catfish. The

owners can produce any aquarium according to the buyer's requirements. Rajshahi city of Bangladesh possesses a fine aquarium with different shapes and sizes of tanks and many uncommon ornamental fish varieties are bred successfully there. The staff at this aquarium know almost everything about the total management of those fishes as well as their diseases. Rangpur division is famous for many ornamental fish shops and breeding ponds. They produce carp type aquarium fishes and supply many areas of Bangladesh except Dhaka. Saidpur is a small upazila (administrative district) and has only one shop selling ornamental fishes. The owner of this shop collects fishes from adjacent Rangpur and for wooden boxes for the aquarium and always contacts carpenters of Dhaka city to construct them. Dinajpur is famous for ornamental fishes with all accessories. Dhaka Katabon is a leading locality for all aquariums, healthy fishes and accessories. They always sell certain informative books on ornamental fishes which are very important and useful for any beginners. They specialize in ornamental fish species (Table 1; Figs. 1-9) and are devoted to researchers of any universities or other organizations who visit inside their shops.

Fig. 5. (Left) Silver Shark, *Balantiocheilos melanopterus* (Bleeker, 1850).(from Wikipedia, 2021e).
Fig. 6. (Right). Tiger Barb, *Barbus tetragona* (Bleeker, 1855)(from Wikipedia, 2021f).

Popular Fish Varieties

History indicates that the Siamese Gourami (*Trichogaster pectoralis*)(Fig. 1) was first introduced into Bangladesh from Singapore in 1952, then the Goldfish (*Carassius auratus*) from Pakistan in 1953 (Table 1; Fig. 9). At first, fishes were used as recreational purposes in aquaria and these tanks were made of cement (Department of Fisheries, 2001). The earliest records of Goldfishes acquiring golden colouration date back to about AD 400. Young Goldfish tend to be greenish-bronze after first resembling their wild ancestors in colour (Alderton, 2008).

Fig. 7. Neon Tetra, *Paracheirodon innesi* (Myers, 1936)(from Wikipedia, 2021g).
Fig. 8. Blue Fighter, *Betta splendens* Regan, 1910 (from Wikipedia, 2021h).

Table 1. Ornamental fishes in Bangladesh with their classification

English Name	Scientific Name	Order	Family
Dwarf Gourami	*Trichogaster lalius*	Cyprinodontiformes	Osphronemidae
Blue Gourami	*T. trichopterus*		
Golden Gourami	*T. trichopterus*		
Stripped Gourami	*T. fasciata*		
Black Molly	*Poecilia sphenops*	Cyprinodontiformes	Poeciliidae
Common Platy	*Xiphophorus maculatus*		
Goldfish	*Carassius auratus*	Cypriniformes	Cyprinidae
Comet	*C. auratus*		
Red-cap	*C. auratus*		
Black Moor	*C. auratus*		
Lion-head	*C. auratus*		
Fantail Goldfish	*C. auratus*		
Bubble-eyed	*C. auratus*		
Calico Ryukin	*C. auratus*		
Telescope Goldfish	*C. auratus*		
Oranda	*C. auratus*		
Shubunkin	*C. auratus*		
Zebra-fish	*Danio rerio*		
Koi Carp	*Cyprinus rubrofuscus*		
Silver Shark	*Balantiocheilos melanopterus*		
Rainbow Shark	*Epalzeorhynchos frenatum*		
Tiger Barb	*Barbus tetrazona*		
Guppy	*Poecilia reticulata*	Cypriniformes	Poeciliidae
Neon Tetra	*Paracheirodon innesi*	Characiformes	Characidae
Cardinal Tetra	*P. axelrodi*		
Rummy-nose Tetra	*Hemigrammus rhodostomus*		
Iridescent Shark	*Pangasianodon hypophthalmus*	Siluriformes	Pangasiidae
Sucker-mouth Catfish	*Hypostomus plecostomus*		Loricariidae

Albino Catfish	*Clarius batrachus*		Clariidae
Blue Fighter	*Betta splendens*	Anabantiformes	Osphronemidae
Blue-brown Fighter	*B. splendens*		
Pink Fighter	*B. splendens*		
Silver Arowana	*Osteoglossum bicirrhosum*	Osteoglossiformes	Osteoglossidae
Freshwater Angel-fish	*Pterophyllum scalare*	Cichliformes	Cichlidae

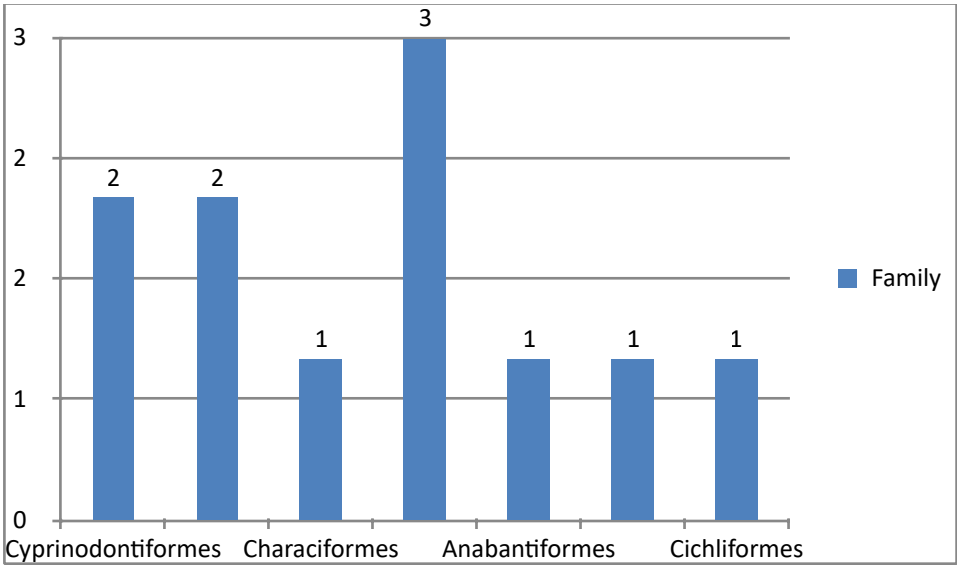

Fig. 9. Comparison of the number of families within 4 fish orders (see also text below for fish orders).

The above figure shows that out of 7 orders of ornamental fishes of Bangladesh, the Siluriformes have the highest number of families (viz. Pangasiidae, Loricariidae, Clariidae) and the lowest (1 family in each group) are in the Characiformes, Anabantiformes, Osteoglossiformes and Cichliformes. The Cyprinodontiformes and Cypriniformes orders are represented by 2 families in each group (Fig. 9).

Conclusion

A private home looks attractive when adorned with aquaria containing any number of the fish species which are outlined in this paper. Ornamental fishes have been traditionally kept by the hobbyist, but now this sector has transformed into a strong commercial business. The number of fish in any aquaria will determine the amount of cleaning but normally two times a month are sufficient. If aquaria are cleaned properly, fish can survive for long periods with good health. For breeding fish, the type and size of aquaria will be dependent on the size and number of fish to be bred. The price of the aquarium and other accessories are reasonable in Bangladesh. Rock, non-toxic plastic toys, medicines and electric devices all are available in most pet shops in this country. Records should be kept on the behaviour, breeding, feeding and diseases of all ornamental fish species and any interesting information published in the scientific or hobbyist literature.

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