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*Corresponding authors: Noor-E-Ishrak Hossain, Department of Fisheries, Rajshahi Institute of Biosciences (RIB), Affi. University of Rajshahi, Rajshahi, 6212, Bangladesh, E-mail: ishrak.hossain.pro@gmail.com

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Research Article

Ornamental aquarium organisms trade in Bangladesh

Noor-E-Ishrak Hossain^{1*} and ABM Mohsin²

¹Department of Fisheries, Rajshahi Institute of Biosciences (RIB), Affi. University of Rajshahi, Rajshahi, 6212, Bangladesh

²Department of Fisheries, University of Rajshahi, Rajshahi-6205, Bangladesh

Abstract

The study was conducted in Dhaka, Bangladesh, and was carried out for twelve (12) months from March 2018 to February 2019 with a view to represent the trading diagram of ornamental fish in Bangladesh. During the current study 270 varieties (230 freshwater, 36 marine, and 4 brackish water) belong to 149 species (109 freshwater 73%, 36 marines 24%, and 4 brackish water 3%) of 38 families under 10 orders and 6 crossbreeds' varieties were recorded. Considering the number of species maximum 83 (55.70%) was found under the order Perciformes followed by Cypriniformes 24 (16.10%), Characiformes 18 (12.08%), Siluriformes 11 (7.38%), Osteoglossiformes 05 (3.35%), Atheriniformes 03 (2.01%), Lepisosteiformes 02 (1.34%), Polypteriformes 01 (0.6%), Myliobatiformes 01 (0.67%) and Cyprinodontiformes 01 (0.67%). The top five popular species were guppy (13.16%) followed by goldfish (12.39%), molly (8.54%), angelfish (6.23%), platy (5.93%). Most of the ornamental fish species were imported by importers from Thailand, Singapore, Indonesia, India, Malaysia, and Japan on the basis of demand. Then the imported shipment of aquarium fish and fish products was distributed among Dhaka Katabon fish shops, wholesalers, and retailers, according to their given order. After that, these were again distributed locally, to aquarium shops, breeders, ornamental fish farms all over the country. General customers and hobbyists purchase ornamental fish and aquarium products from local aquarium shops and businesses. The increasing tendency of the number of fish species was 5.96 times in the last 15 years and 3.31 times in the last 10 years. Local farms and aquarists' breeders bred 76 varieties under 23 species due to its high demand and profitability. Pricing varied on varieties, species, size, and breeding status (local or abroad), availability and ranged from BDT 40.00-80,000.00 per pair. Considering the findings, aquarium fisheries is highly profitable at present and it will be a potential sector in Bangladesh.

Introduction

Aquarium fishes are attractive colorful fishes of various characteristics, which are kept as pets in the confined space of an aquarium or a garden pool for fun and fancy [1]. These living jewels need not always have bright colors; as sometimes their peculiar characteristics such as body color, morphology, mode of taking food, etc. may also add to their attractiveness [2].

An aquarium is an enclosed body of water containing a mixture of selected and unselected captive living aquatic organism which is essentially unstable and to obtain stability must be carefully designed and managed [3]. Aquarium keeping is amongst the most popular of hobbies with millions of enthusiasts worldwide [4]. It was projected that 150 million

ornamental fish both marine and freshwater were sold each year worldwide and the trade and its associated aquarium accessories were worth over US\$7 billion annually, in the late 1980s [5].

Since 1985 the value of international trade in exports of ornamentals has increased at an average growth rate of approximately 14 percent per year [6]. More than 100 countries are involved in the ornamental fish trade and approximately one billion fish have moved annually between the trading blocks [7].

[8]. Reported that two common ideas of pet business in ornamental fisher are—either breeding fish or starting an aquarium maintenance service. Globally ornamental fish

keeping treats as an industry due to its high market demand and profitability as well as it is a hobby that has been rated as the second most popular and most popular type of pet in the industrialized country [9]. Pet industry surveys have estimated the aquarium industry worth over \$1,000 million USD [10]. Singapore is currently the main exporter of ornamentals to the world [11]. The United States (US) is the single largest importer of ornamental fish in the world [12]. More recently, it was estimated that 1,471 marine ornamental fish [13]. And more than 4,000 species of ornamental freshwater fish were traded globally each year [14]. Both freshwater and marine water fish species are popular among hobbyists. But statistically, from commercial perspective freshwater species dominate 90–96% and are produced in commercial aquaculture facilities [10,15]. Although exact figures on the value and trade of the ornamental fish industry do not exist, the value of ornamental fish and invertebrates imported into different countries worldwide is approximately \$278 million US dollars [12].

The approximate global import value of aquarium fishes is US\$ 321 million [16]. And among them, only US\$ 21–48 million is belong to the marine aquarium fish trade [17]. The business of ornamental fish is now very popular in many countries of the world and a rapidly growing venture in Bangladesh [18]. Nowadays farmers and investors are very much interested to move their business to more diversified fields such as crocodile culture, pearl culture, aquarium fish trades, etc. [19]. The study area was selected in Dhaka city because it is considered the hub of the aquarium fish trade in Bangladesh. The present study was conducted following some specific objectives- to know the types, price, popularity, and trade chain of ornamental aquarium species in Bangladesh. Knowing the ornamental organism's business chain, which will help us to know the economic potential and contribution in Bangladesh.

Materials and methods

The study was conducted at Katabon aquarium fish market, Tajmahal Road, Mohammadpur, Hatipool road, and Kachukhet, Mirpur in Dhaka city for a period of twelve (12) months from March 2018 to February 2019. Frequent field visits were made during the study period to the study area for the collection of primary data. The primary data were collected by the survey which was divided into their sub-divisions such as eye observation, farm walk, and interview with the help of a questionnaire. Forty different aquarium shops and 40 respondents of aquarium shopkeepers, 20 respondents of aquarium hobbyists, and 5 respondents of aquarium fish breeders were interviewed during the survey.

Primary data, the identification of the fish species, and other aquarium organisms for creating the checklist were cross-checked with help of secondary data such as journals, books, authentic online databases, online ornamental fish shops, and other published documents. A taxonomic study was used to prepare the checklist of aquarium fish. The availability of ornamental aquarium fish was determined by counting the numbers of individual species and varieties. Numeric data were analyzed by using Microsoft Excel 2016.

Result and discussion

The present study consists of 270 aquarium fish varieties under 149 species which are belong to-115 genera, excluding 6 crossbreeds varieties under 1 species.

On the other hand, previous studies recorded the number of aquarium fish species were 78 varieties under 45 species, 41 genera and 2 cross-breeds by [18]. 25 species by [20]. In Dhaka Katabon, 26 species by [21]. In Dhaka katabon, 12 species by Mohsin, et al. [22]. In Rajshahi city, 22 species by Arif, et al. [23]. At Sylhet Sadar Upazila, 29 varieties by Alam, et al. [24]. In Barisal division and 30 species by [19]. In Khulna district. The number of aquarium fish species recorded in the present study is higher than in previous studies. Except for the present study, no marine and brackish water aquarium fish and other fisheries items were recorded in the previous studies Tables 1,2, Figure 1.

During the study most popular and highly contributed species in the surveyed shops were guppy (13.16%) followed by goldfish (12.39%), molly (8.54%), tetra (6.54%), angelfish (6.23%), platy (5.93%), gourami (5.48%), swordtail (4.41%), koi carp (3.79%), zebrafish (3.31%), barb (2.83%), suckermouth catfish (2.46%). In a previous study according to consumer demand the most demandable aquarium fish species were goldfish, comet fish, koi carp, angle fish, platy, guppy, fighter fish, parrotfish, and discus by Faruk, et al. [21], Figure 2.

The number of aquarium fish species, aquarium shops, aquarium fish breeders, and hobbies has increased immensely due to the profitability for traders and acceptability by the aquarists.

During the study period, 149 aquarium fish species are recorded which is 5.96 times in the last 15 years [20]. (25 species) And 3.31 times in the last 10 years [18]. (45 species) (Figure 3).

During the study, it was recorded that 76 varieties of aquarium fish under 23 orders were bred by local aquarium breeders and farms (Figure 4).

On the other hand, according to Galib [18]. Artificial breeding techniques of at least 17 varieties of exotic ornamental fishes have been developed by amateur fish breeders. According to present findings, it is clearly indicated that the number of varieties as well species of native and non-native ornamental aquarium fish is highly increased rapidly.

Moreover, the diversity of the habitat and number of locally bred non-native species are raised as well. It is concluded that the native and non-native ornamental aquarium fish breeding and keeping practice (hobby and business) is becoming a potential sector in Bangladesh.

Trade chain of aquarium fish and aquarium other fisheries items

During the present study, it was observed that people of different categories were connected to each other in the

Table 1: Checklist of aquarium fish in Bangladesh, with scientific name, common name, and price.

Common name	Scientific name	Price range (BDT/pair)
Black ghost knife fish	<i>Apteronotus albifrons</i>	850-1100
Silver shark	<i>Balantiocheilus melanopterus</i>	150-250
Green tiger barb	<i>Puntigrus tetrazona</i>	220-260
Tiger barb	<i>Puntigrus tetrazona</i>	60-120
Golden tiger barb	<i>Puntigrus tetrazona</i>	150-220
Albino tiger barb	<i>Puntigrus tetrazona</i>	180-250
Denison barb	<i>Sahyadria denisonii</i>	1100-1300
Tinfoil barb	<i>Barbonymus schwanenfeldii</i>	220-380
Ruby barb	<i>Pethia nigrofasciata</i>	400-450
Cherry barb	<i>Puntius titteya</i>	160-180
Rosy barb	<i>Pethia conchonius</i>	120-180
Zebra danio	<i>Danio rerio</i>	80-120
Fireline devario	<i>Devario sondhii</i>	350-400
Spotted danio	<i>Danio nigrofasciatus</i>	90-120
Blackmoor	<i>Carassius auratus</i>	80-450
Bubble eye	<i>Carassius auratus</i>	400-2000
Calico	<i>Carassius auratus</i>	80-300
Celestine Eye	<i>Carassius auratus</i>	120-450
Comet	<i>Carassius auratus</i>	80-350
Fantail	<i>Carassius auratus</i>	80-750
Veiltail	<i>Carassius auratus</i>	180-450
Lionhead	<i>Carassius auratus</i>	120-550
Oranda	<i>Carassius auratus</i>	200-450
Redcap	<i>Carassius auratus</i>	150-450
Ryukin	<i>Carassius auratus</i>	250-650
Pearl scale	<i>Carassius auratus</i>	600-1500
Shubunkin	<i>Carassius auratus</i>	180-500
Assorted koi carp	<i>Cyprinus carpio</i>	120-5000
Tiger koi carp	<i>Cyprinus carpio</i>	120-2000
Harlequin rasbora	<i>Trigonostigma heteromorpha</i>	250-450
Common name	Scientific name	Price range (BDT/pair)
Galaxy rasbora	<i>Danio margaritatus</i>	800-1200
Glowlight rasbora	<i>Trigonostigma hengeli</i>	250-450
Albino shark	<i>Epalzeorhynchus frenatus</i>	180-220
Rainbow shark	<i>Epalzeorhynchus frenatus</i>	120-140
High fin shark	<i>Myxocyprinus asiaticus</i>	3000-3500
Roseline shark	<i>Puntius denison</i>	800-1200
Horse-face loach	<i>Acantopsis choirorhynchus</i>	250-450
Clown loach	<i>Chromobotia macracanthus</i>	600-650
Y-loach	<i>Botia lohachata</i>	180-350
Burmese Border loach	<i>Botia kubotai</i>	250-550
Bengal loach	<i>Botia dario</i>	120-220
Cory cat	<i>Corydoras aeneus</i>	400-450
Panda corydoras	<i>Corydoras panda</i>	200-250
Leopard corydoras	<i>Corydoras julii</i>	250-350
Albino catfish	<i>Clarias batrachus</i>	120-150
Redtail catfish	<i>Phractocephalus hemiliopterus</i>	1800-5000
Tiger Shovelnose	<i>Pseudoplatystoma tigrinum</i>	800-1000



Suckermouth catfish	<i>Hypostomus plecostomus</i>	60-320
Dwarf suckers	<i>Otocinclus vittatus</i>	400-550
Tiger shark	<i>Pangasius hypophthalmus</i>	180-220
White tiger shark	<i>Pangasius hypophthalmus</i>	180-220
Glass catfish	<i>Kryptopterus bicirrh</i>	850-1600
Red-tailed catfish	<i>Phractocephalus hemiliopterus</i>	650-950
Bloodfin tetra	<i>Aphyocharax anisitsi</i>	450-650
Black skirt tetra	<i>Gymnocorymbus ternetzi</i>	160-250
Rummy nose tetra	<i>Hemigrammus bleheri</i>	200-220
Phantom tetra	<i>Hyphessobrycon megalopterus</i>	130-150
Rathbuni bloodfin tetra	<i>Aphyocharax rathbuni</i>	600-700
Neon tetra	<i>Paracheirodon innesi</i>	100-150
Congo tetra	<i>Phenacogrammus interruptus</i>	700-800
Columbian tetra	<i>Hyphessobrycon columbianus</i>	180-320
Ember tetra	<i>Hyphessobrycon amandae</i>	150-180
Red ember tetra	<i>Hyphessobrycon amandae</i>	160-250
Gold tetra	<i>Hemigrammus rodwayi</i>	80-120
Gold light tetra	<i>Hemigrammus rodwayi</i>	120-180
Lemon tetra	<i>Hyphessobrycon pulchripinnis</i>	90-120
Silver tip tetra	<i>Hasemania nana</i>	220-320
Cardinal tetra	<i>Paracheirodon axelrodi</i>	180-250
Red eye tetra	<i>Moenkhausia sanctaefilomenae</i>	150-180
Silver dollar	<i>Metynnis hypsauchen</i>	150-650
Marbled hatcher fish	<i>Carnegiella strigata</i>	450-680
Pirapitinga	<i>Piaractus brachypomus</i>	600-800
Red piranha	<i>Pygocentrus nattereri</i>	400-1600
Silver Arowana	<i>Osteoglossum bicirrhosum</i>	1500-8500
Golden or Asian Arowana	<i>Scleropages formosus</i>	20000-80000
Black Arowana	<i>Osteoglossum ferreirai</i>	18000-40000
Clown knife fish	<i>Chitala ornata</i>	650-850
Elephant nose	<i>Gnathonemus petersii</i>	950-2000
Dwarf rainbowfish	<i>Melanotaenia praecox</i>	1500-2100
Threadfin rainbowfish	<i>Iriatherina wernerii</i>	1600-2200
Boeseman's rainbowfish	<i>Melanotaenia boesemani</i>	1300-2300
Spotted gar	<i>Lepisosteus oculatus</i>	500-800
Common name	Scientific name	Price range (BDT/pair)
Alligator gar	<i>Atractosteus spatula</i>	250-600
Reedfish	<i>Erpetoichthys calabaricus</i>	650-800
Glassfish	<i>Parambassis ranga</i>	120-180
Veiltail betta	<i>Betta splendens</i>	350-400
Delta tail betta fish	<i>Betta splendens</i>	600-700
Yellow butterfly betta	<i>Betta splendens</i>	1400-1600
Feather tail betta	<i>Betta splendens</i>	1600-1800
Placket betta	<i>Betta splendens</i>	1100-1200
Comtail betta	<i>Betta splendens</i>	1300-1400
Rose-tail betta	<i>Betta splendens</i>	1250-1400
Double tail betta	<i>Betta splendens</i>	1000-1200
Half-tail betta	<i>Betta splendens</i>	1300-1400
Full-tail betta	<i>Betta splendens</i>	1000-1200
Half-moon tail betta	<i>Betta splendens</i>	1250-1350

Full-moon tail betta	<i>Betta splendens</i>	1100-1200
Crown tail betta	<i>Betta splendens</i>	450-550
Koi half-moon betta	<i>Betta splendens</i>	2200-2400
Spade betta	<i>Betta splendens</i>	1250-1400
Rainbow Snakehead	<i>Channa bleheri</i>	5500-6000
Scarlet badis	<i>Dario dario</i>	350-550
Blue acara	<i>Aequidens pulcher</i>	220-3500
Lombardoi mbuna cichlid	<i>Maylandia lombardoi</i>	600-800
Kenya cichlid	<i>Maylandia lombardoi</i>	950-1450
Humphead cichlid	<i>Cyphotilapia frontosa</i>	600-1200
Yellow belly cichlid	<i>Trichromis salvini</i>	550-1250
Ram Cichlid	<i>Mikrogeophagus ramirezi</i>	950-1500
Bumblebee Mouth brooder	<i>Pseudotropheus crabro</i>	1000-1800
Demasoni	<i>Pseudotropheus demasoni</i>	1800-2500
Nyererei	<i>Haplochromis nyererei</i>	1500-2200
Electric blue cichlid	<i>Sciaenochromis ahli</i>	950-1250
Deepwater hap	<i>Placidochromis electra</i>	1500-2000
Super VC-10 hap	<i>Placidochromis milomo</i>	800-1500
Ice blue cichlid	<i>Maylandia greshakei</i>	1100-1900
Orange zebra cichlid	<i>Maylandia estherae</i>	400-1200
Venustus hap	<i>Nimbochromis venustus</i>	850-1150
Venustus cichlid	<i>Nimbochromis venustus</i>	750-1000
Blue dolphin cichlid	<i>Cyrtocara moorii</i>	1200-2000
Earth-eater	<i>Geophagus sp.</i>	1600-2000
Julies	<i>Julidochromis transcriptus</i>	1200-1800
Sunshine peacock	<i>Aulonocara sp.</i>	350-1250
Five color cichlid	<i>Labeotropheus fuelleborni</i>	350-850
Red spot severum	<i>Heros Efasciatus</i>	650-850
Golden oscar	<i>Astronotus ocellatus</i>	800-2500
Red oscar	<i>Astronotus ocellatus</i>	700-2000
Longfin oscar	<i>Astronotus ocellatus</i>	1200-4000
Albino tiger oscar	<i>Astronotus ocellatus</i>	700-2000
Albino red oscar	<i>Astronotus ocellatus</i>	700-2000
Albino oscar	<i>Astronotus ocellatus</i>	700-2000
Blue dolphin cichlid	<i>Boulenger moori</i>	1200-1800
Blood red parrot	<i>Cichlasoma citrinellum x C. synspilum</i>	650-3000
Green parrot	<i>Cichlasoma citrinellum x C. synspilum</i>	800-3600
Red heart shape parrot	<i>Cichlasoma citrinellum x C. synspilum</i>	1000-4000
Common name	Scientific name	Price range (BDT/pair)
Red love parrot	<i>Cichlasoma citrinellum x C. synspilum</i>	450-2500
Yellow love parrot	<i>Cichlasoma citrinellum x C. synspilum</i>	450-2600
White parrot	<i>Cichlasoma citrinellum x C. synspilum</i>	550-2500
Golden mbuna	<i>Melanochromis auratus</i>	300-500
Black angel	<i>Pterophyllum scalare</i>	50-550
Marble angel	<i>Pterophyllum scalare</i>	50-550
Sunset angel	<i>Pterophyllum scalare</i>	80-750
Koi angel	<i>Pterophyllum scalare</i>	80-700
Leopard angel	<i>Pterophyllum scalare</i>	130-850
Veil-tail angel	<i>Pterophyllum scalare</i>	120-650
Blue angel	<i>Pterophyllum scalare</i>	180-850

Zebra angel	<i>Pterophyllum scalare</i>	60-600
Gold angel	<i>Pterophyllum scalare</i>	100-800
Altum angel	<i>Pterophyllum scalare</i>	120-750
Silver angel	<i>Pterophyllum scalare</i>	80-650
Albino angel	<i>Pterophyllum scalare</i>	100-700
Brown discus	<i>Symphysodon discus</i>	1500-6000
Turquoise blue discus	<i>Symphysodon discus</i>	2200-4800
Blue diamond discus	<i>Symphysodon discus</i>	1500-4500
Red Marlboro discus	<i>Symphysodon discus</i>	1500-5000
Brilliant blue discus	<i>Symphysodon discus</i>	2200-4800
Red eagle discus	<i>Symphysodon discus</i>	1800-5000
Ghost discus	<i>Symphysodon discus</i>	2500-6000
Pigeon blood discus	<i>Symphysodon discus</i>	2200-4500
Red turquoise discus	<i>Symphysodon discus</i>	2500-5000
Marble discus	<i>Symphysodon discus</i>	1900-4200
Tomato discus	<i>Symphysodon discus</i>	1400-4000
Red snakeskin discus	<i>Symphysodon discus</i>	1500-4500
Golden pigeon discus	<i>Symphysodon discus</i>	900-3500
Red ruby discus	<i>Symphysodon discus</i>	1500-4000
Yellow Marlboro discus	<i>Symphysodon discus</i>	1800-5000
Red turquoise discus	<i>Symphysodon discus</i>	2000-4500
Red pearl pigeon discus	<i>Symphysodon discus</i>	1600-4500
Pigeon blood snakeskin discus	<i>Symphysodon discus</i>	1500-5500
Checkerboard discus	<i>Symphysodon discus</i>	750-3500
Golden pearl discus	<i>Symphysodon discus</i>	1300-4500
White scorpion discus	<i>Symphysodon discus</i>	1000-4000
Red-brown discus	<i>Symphysodon discus</i>	900-3500
White pigeon redline discus	<i>Symphysodon discus</i>	800-4000
Snow white discus	<i>Symphysodon discus</i>	1200-4500
Red white diamond	<i>Symphysodon discus</i>	1000-3500
Yellow-white diamond	<i>Symphysodon discus</i>	1500-4000
Red melon	<i>Symphysodon discus</i>	1200-4500
Bumblebee goby	<i>Brachygobius xanthozonu</i>	500-650
Kissing gourami	<i>Helostoma temmincki</i>	180-2000
Snakeskin gourami	<i>Trichogaster pectoralis</i>	80-2000
Dwarf gourami	<i>Colisa lalia</i>	200-220
Honey gourami	<i>Colisa sota</i>	120-140
Chocolate gourami	<i>Sphaerichthys osphronemoides</i>	1700-2200
Giant gourami	<i>Osphronemus goramy</i>	1500-3500
Pearl gourami	<i>Trichogaster leeri</i>	220-380
Blue gourami	<i>Trichogaster trichopterus</i>	180-260
Common name	Scientific name	Price range (BDT/pair)
Golden gourami	<i>Trichogaster trichopterus</i>	180-280
Multicolor guppy	<i>Poecilia reticulata</i>	40-80
Sail fin guppy	<i>Poecilia reticulata</i>	200-300
Blue mosaic guppy	<i>Poecilia reticulata</i>	350-500
Tuxedo blue dragon half-moon guppy	<i>Poecilia reticulata</i>	100-200
Half black yellow guppy	<i>Poecilia reticulata</i>	180-220
Tuxedo white high dorsal guppy	<i>Poecilia reticulata</i>	250-300
Half black blue guppy	<i>Poecilia reticulata</i>	150-220

Albino blue tail guppy	<i>Poecilia reticulata</i>	160-200
Blue eagle guppy	<i>Poecilia reticulata</i>	400-500
Red lace guppy	<i>Poecilia reticulata</i>	1000-1200
Yellow platinum guppy	<i>Poecilia reticulata</i>	100-250
Yellow king cobra guppy	<i>Poecilia reticulata</i>	250-300
Elephant ear guppy	<i>Poecilia reticulata</i>	900-1000
Yellow galaxy guppy	<i>Poecilia reticulata</i>	250-300
Blue neon guppy	<i>Poecilia reticulata</i>	150-200
Full pink guppy	<i>Poecilia reticulata</i>	500-600
Purple mosaic guppy	<i>Poecilia reticulata</i>	350-500
Blue lace guppy	<i>Poecilia reticulata</i>	150-220
Full black guppy	<i>Poecilia reticulata</i>	200-250
Platinum half red sakura guppy	<i>Poecilia reticulata</i>	180-300
Full red guppy	<i>Poecilia reticulata</i>	300-400
Moscow guppy	<i>Poecilia reticulata</i>	80-160
Balloon molly (Golden)	<i>Poecilia sphenops</i>	120-140
Balloon molly (White)	<i>Poecilia sphenops</i>	120-140
Black molly	<i>Poecilia sphenops</i>	120-130
Orange sailfin molly	<i>Poecilia sphenops</i>	100-160
Golden calico sailfin molly	<i>Poecilia sphenops</i>	120-180
Golden dust molly	<i>Poecilia sphenops</i>	200-300
Silver sailfin molly	<i>Poecilia sphenops</i>	120-180
Mixed color molly	<i>Poecilia sphenops</i>	120-130
Lyre-tail molly	<i>Poecilia sphenops</i>	60-80
White molly	<i>Poecilia sphenops</i>	80-200
Mickey mouse swordtail	<i>Xiphophorus helleri</i>	120-180
Koi swordtail	<i>Xiphophorus helleri</i>	100-160
Double tail swordtail	<i>Xiphophorus helleri</i>	180-250
Hi-fin swordtail	<i>Xiphophorus helleri</i>	120-220
Bumble bee platy	<i>Xiphophorus maculatus</i>	80-180
Hi-fin platy	<i>Xiphophorus maculatus</i>	120-200
Wag tail platy	<i>Xiphophorus maculatus</i>	120-150
Tuxedo platy	<i>Xiphophorus maculatus</i>	90-160
Sunset platy	<i>Xiphophorus maculatus</i>	120-180
Ocellate river stingray	<i>Potamotrygon motoro</i>	15000-25000
Golden panchax	<i>Pachypanchax playfairii</i>	300-400
Spotted scats	<i>Scatophagus argus</i>	180-350
Malayan angel	<i>Monodactylus argenteus</i>	300-600
Banded archerfish	<i>Toxotes jaculatrix</i>	1500-2100
Orange chromides	<i>Etroplus maculatus</i>	950-1500
Yellowtail clownfish	<i>Amphiprion clarkia</i>	2500-5000
Tomato clownfish	<i>Amphiprion frenatus</i>	2000-4500
Common name	Scientific name	Price range (BDT/pair)
Maroon clownfish	<i>Amphiprion tricolor</i>	3500-6500
Sebae clownfish	<i>Amphiprion sebae</i>	3000-7000
Clown anemonefish	<i>Amphiprion ocellaris</i>	2000-4500
Skunk clownfish	<i>Amphiprion akallopisos</i>	5500-6000
Blue green damselfish	<i>Chromis viridis</i>	5000-5500
Yellow chromis	<i>Chromis analis</i>	950-1900
Yellowtail damselfish	<i>Microspathodon chrysurus</i>	1200-2000

Neon damselfish	<i>Pomacentrus coelestis</i>	1550-3200
Yellowbelly damselfish	<i>Amblyglyphidodon leucogaster</i>	1050-2100
Cross' damsel	<i>Neoglyphidodon crossi</i>	1400-2800
Goldtail demoiselle	<i>Chrysiptera parasema</i>	1600-3200
Regal angelfish	<i>Pygoplites diacanthus</i>	6500-13000
Yellow tang	<i>Zebrasoma flavescens</i>	2800-5600
Sailfin tang	<i>Zebrasoma velifer</i>	7000-14000
Spotted surgeon fish	<i>Ctenochaetus strigosus</i>	6500-10500
Yellowfin tang	<i>Acanthurus xanthopterus</i>	2500-5200
Sixline wrasse	<i>Pseudocheilinus hexataenia</i>	3000-6000
Foxface	<i>Siganus vulpinus</i>	6000-12000
Vagabond butterflyfish	<i>Chaetodon vagabundus</i>	3500-6500
Latticed butterflyfish	<i>Chaetodon rafflesii</i>	3000-6000
Melon butterflyfish	<i>Chaetodon trifasciatus</i>	5500-10500
Yellowfin blenny	<i>Enchelyurus flavipes</i>	2000-4000
Bicolor blenny	<i>Ecsenius bicolor</i>	2000-4000
Yellow prawn-goby	<i>Cryptocentrus cinctus</i>	1800-3600
Dispar anthias	<i>Pseudanthias dispar</i>	4400-8400
Bicolor angelfish	<i>Centropyge bicolor</i>	4400-7500
Keyhole angelfish	<i>Centropyge tibicen</i>	4200-7000
Midnight angelfish	<i>Centropyge nox</i>	5200-9500
Russet angelfish	<i>Centropyge potteri</i>	3700-6500
Black tail angelfish	<i>Centropyge eibli</i>	5500-12000
Emperor angelfish	<i>Pomacanthus imperator</i>	7000-15000
Bluegirdled angelfish	<i>Pomacanthus navarchus</i>	5500-12000
Magenta dottedback	<i>Pictichromis porphyria</i>	1500-3500
Royal dottedback	<i>Pictichromis paccagnellae</i>	6000-7000

Alongside aquarium fishes, other fisheries items were also very popular in the market.

Table 2: List of aquarium non-piscine fisheries items in Dhaka.

Non-piscine species	Scientific name	Common name	Price range (per piece)
Turtle	<i>Trachemys scripta</i>	Red-eared slider	380-650
	<i>Geoclemys hamiltonii</i>	Black pond turtle	450-850
Snail	<i>Clea helena</i>	Assassin Snail	60-80
	<i>Engina mendicaria</i>	Bumble Bee Snail	250-300
	<i>Conasprella pagoda</i>	Pagoda snail	130-150
	<i>Neritina natalensis</i>	Zebra Snail	180-200
	<i>Taia naticoides</i>	Piano Snail	120-160
	<i>Pomacea bridgesii</i>	Apple Snail	40-60
Shrimp	<i>Caridina cf. cantonensis</i> var. blue tiger	Blue tiger shrimp	650-700
	<i>Neocaridina davidi</i>	Fire Red Shrimp	150-200
	<i>Neocaridina cf. zhangjiajiensis</i> var. white	Snowball Shrimp	500-600
	<i>Neocaridina davidi</i> var. Yellow	Yellow Shrimp	400-450
	<i>Neocaridina heteropoda</i> Var.	Chocolate Shrimp	500-600
	<i>Neocaridina heteropoda</i> var. Orange	Orange Sakura Shrimp	150-180
	<i>Caridina multidentata</i>	Amano Shrimp	280-350
	<i>Neocaridina davidi</i> var. rili	Red rilli Shrimp	250-300
	<i>Procambarus clarkia</i>	Snow White Crayfish	900-1100
Amphibian	<i>Cambarellus patzcuarensis</i>	Mexican Dwarf Orange Crayfish	500-650
	<i>Ambystoma mexicanum</i>	Mexican walking fish	650-800



Crab	<i>Pagurus bernhardus</i>	Hermit Crab	1600-1800
Coral, mushroom, and polyps	<i>Sinularia notanda</i>	Finger leather coral	4500-6500
	<i>Actinodiscus cardinalis</i>	Red mushroom	5000-5500
	<i>Protopalythoa mutuki</i>	Green button polyps	2500-6000
Aquarium plant	<i>Anubias afzelii</i>	Anubias Afzelii	300-350 (PB)
	<i>Anubias barteri</i> var. <i>glabra</i>	Water aspidistra	300-350 (PB)
	<i>Anubias hastifolia</i>	Anubias hastifolia	350 (PB)
	<i>Anubias heterophylla</i>	Congo anubias	300-350 (PB)
	<i>Cryptocoryne balansae</i>	Balansae plant	250 (PP)
	<i>Cryptocoryne parva</i>	Dwarf crypt plant	250 (PP)
	<i>Cryptocoryne undulates</i>	<i>Cryptocoryne undulatus</i>	250 (PP)
	<i>Cryptocoryne wendtii</i>	Water trumpet	250 (PP)
	<i>Echinodorus tenellus</i>	Mud babies	200 (PB)
	<i>Blyxa japonica</i>	Bamboo plant	200 (PB)
	<i>Cardamine lyrata</i>	Japanese cress	200 (PB)
	<i>Alternanthera reineckii</i>	Roseafolia	200 (PB)
	<i>Aegagropila linnaei</i>	Moss ball	200 (PB)
	<i>Vesicularia montagnei</i>	Christmas moss	250 (PB)
	<i>Taxiphyllum Barbieri</i>	Java moss	200 (PB)
	<i>Echinodorus bleheri</i>	Broadleaf Amazon Sword	200 (PB)
	<i>Bacopa caroliniana</i>	Blue water hyssop	200 (PB)
	<i>Limnophila aquatic</i>	Giant ambulia	200 (PB)
	<i>Bacopa myriophylloides</i>	Water hyssop	200 (PB)
	<i>Hygrophila difformis</i>	Water wisteria	200 (PB)
	<i>Hygrophila polysperma</i>	Indian swamp weed	250 (PP)
	<i>Hygrophila pinnatifida</i>	Miramar weed	200 (PB)
	<i>Hygrophila corymbosa</i>	Giant hygo	250-300(PP)
	<i>Pogostemon helferi</i>	Downoi	200 (PB)
	<i>Pogostemon erectus</i>	Erectus plant	250 (PP)
	<i>Glossostigma elatinoides</i>	Glosso	250 (PP)
	<i>Hemianthus callitrichoides</i>	Cuba	200 (PB)
	<i>Ludwigia ovalis</i>	Oval ludwigia	200 (PB)
	<i>Ludwigia palustris</i>	Marsh seed box	200 (PB)
	<i>Ludwigia peruensis</i>	Red Star Ludwigia	200 (PB)
	<i>Ludwigia repens</i>	Creeping primrose-willow	200 (PB)
	<i>Ludwigia arcuata</i>	Piedmont primrose-willow	200 (PB)
	<i>Rotala Indica</i>	Indian tooth cup	250 (PB)
	<i>Rotala wallichii</i>	Red wallichii plant	200 (PB)
	<i>Rotala macrandra</i>	Giant red rotala	200 (PB)
	<i>Riccia fluitans</i>	Floating crystalwort	200 (PB)
	<i>Nymphaea zenkeri</i>	Tiger lotus red	250 (PB)
	<i>Corynephorus canescens</i>	Hair grass	250 (PB)
	<i>Mayaca fluviatillis</i>	Bog moss	200 (PB)
	<i>Microsorium Pteropus</i>	Fern	200 (PB)
	<i>Micranthemum umbrosum</i>	Shade mud flower	250 (PP)
	<i>Myriophyllum aquaticum</i>	Parrot feather watermilfoil	200 (PB)

(PP: Per Pot; PB: Per Bundle)

aquarium fish marketing channel in Bangladesh. Detailed information of import of exotic was not maintained systematically in Bangladesh [19,20].

In the present study, the access pathway, the distribution, and the marketing channel of aquarium fishes and other fisheries organisms are shown in (Figure 5). It was found that most of the imported aquarium fish and other fisheries items were introduced from Thailand, Singapore, Indonesia, India, Malaysia, Japan, etc.

The goldfish was introduced from Pakistan former West Pakistan in 1953 [25]. And the tiger shovelnose catfish was introduced from Australia in 2009. Mainly aquarium fishes and other fisheries organisms were imported by aquarium fish importers of Bangladesh, located in Katabon area of Dhaka city [26-31].

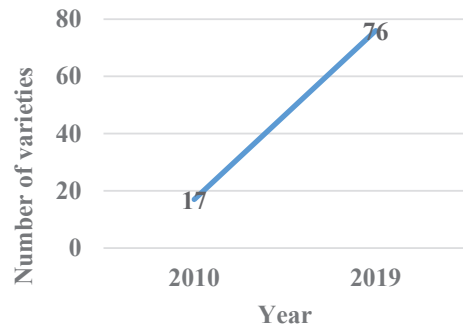


Figure 4: Increasing number of locally bred aquarium fish varieties over the

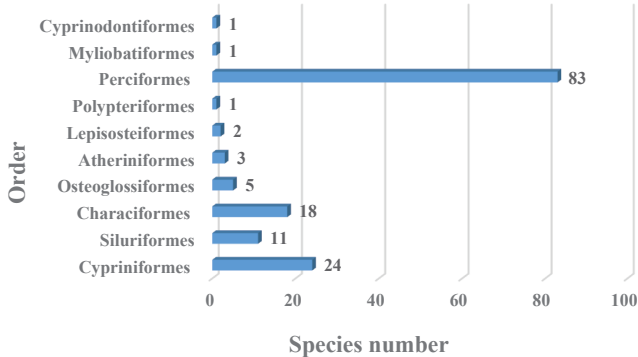


Figure 1: Number of aquarium fish species in the order.

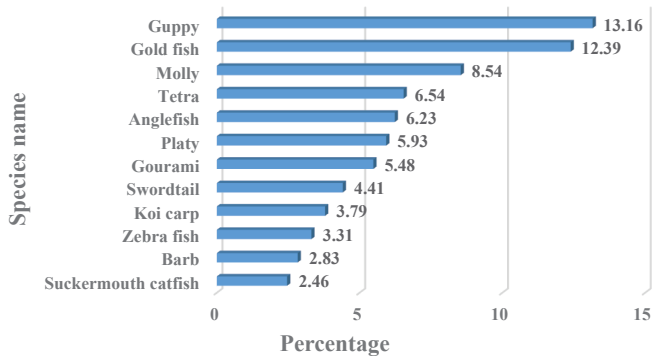


Figure 2: Top twelve popular (common) aquarium fish species.

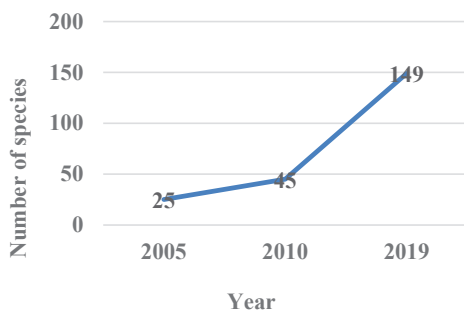


Figure 3: Increasing tendency of number of aquarium fish species over the years.

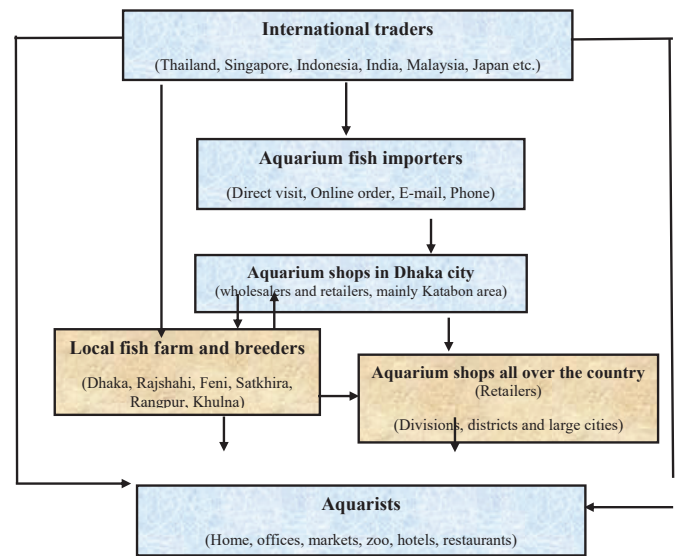


Figure 5: Access pathway, various distribution and marketing channel of aquarium fish and other fisheries items in Bangladesh.

Aquarist sometimes personally import their products but it is very rare. Various online agencies are importing aquarium items and trading through online platforms such as websites, Facebook. Breeding techniques of many aquarium fishes and other fisheries organisms are discovered by local breeders online.

Local breeding organisms are also distributed through Katabon and local aquarium shops. Aquarium fish farms are commercially breeding and cultivating aquarium fishes and other fisheries organisms and creating new possibilities in the aquarium business.

(Kohls and Uhl, 1980) stated that the marketing channel may be short or long for a particular commodity depending on the quality of the marketed products, nature, and size of the consumers and producers.

During the study, it was found that the price of aquarium fish is much higher than food fish. The proportion between the space required for aquarium fishes and culture fishes is very significant. Aquarium fishes need a little amount of space to maintain, breed and the management cost is very low compared to the price.

The top 3 highly-priced aquarium fishes were found as- Golden Arowana (20000-80000 BDT/pair), Black Arowana (18000-45000 BDT/pair), and Ocellate River Stingray (15000-25000 BDT/pair) (Table 3)

[18]. Recorded silver Arowana as the most expensive species (30000 BDT/pair), Koi carp (12000 BDT/pair), and Tiger shovelnose (4000 BDT/pair). Rahman, *et al.* [19]. Found red parrot as the most expensive species (1000-1500 BDT/pair), in their study followed by discus (800-1000 BDT/pair) and oscar (400-600 BDT/pair). Arif, *et al.* [23]. Mentioned discus as the most expensive species (1500 BDT/pair), parrotfish (1000 BDT/pair), and oscar (650 BDT/pair) Table 4.

During the study, it was recorded that 76 varieties of aquarium fish under 23 orders were bred by local aquarium breeders and farms. Artificial breeding techniques of at least 17 varieties of exotic ornamental fishes have been developed by amateur fish breeders [18].

Mostafizur, *et al.* [19]. Reported that 12 shops and 7 breeders have been found in the Khulna district where 29 different aquarium fish species were marketed of which 12 species were bred for fry production Figure 6.

Rahman [20]. Recorded 25 aquarium shops in the Katabon pet market and in the present study the number had increased

Table 3: Top ten highly-priced aquarium fish species.

SL	Species name	Habitat	Price range according to size (BDT/pair)
1	Golden or Asian Arowana	Freshwater	20000-80000
2	Black Arowana	Freshwater	18000-45000
3	Ocellate River Stingray	Brackish water	15000-25000
4	Silver Arowana	Freshwater	7000-18000
5	Emperor angelfish	Marine water	7000-15000
6	Sailfin tang	Marine water	7000-14000
7	Foxface	Marine water	6000-12000
8	Bluegirdled angelfish	Marine water	6000-12000
9	Blacktail angelfish	Marine water	5500-12000
10	Spotted surgeonfish	Marine water	6500-10500

Table 4: Top ten cheap aquarium fish species.

SL	Species name	Habitat	Price range according to size (BDT/pair)
1	Multi-color Guppy	Freshwater	40-60
2	Black Molly	Freshwater	50-80
3	Tiger barb	Freshwater	60-80
4	Zebra danio	Freshwater	60-80
5	Tuxedo Platy	Freshwater	60-80
6	Mickey mouse sword tail	Freshwater	80-120
7	Rosy barb	Freshwater	80-120
8	Blue gourami	Freshwater	80-120
9	Rainbow shark	Freshwater	120-140
10	Marble angelfish	Freshwater	40-450

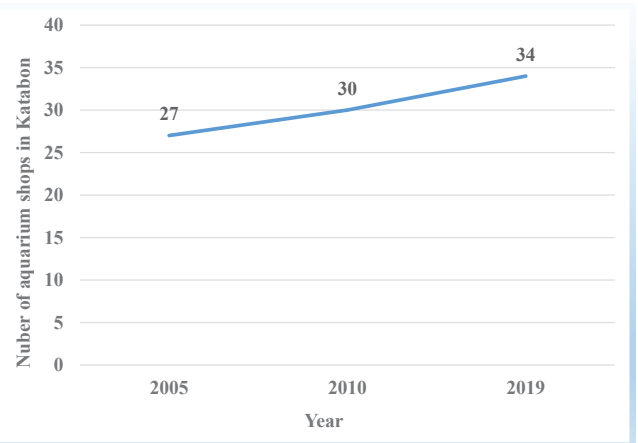


Figure 6: Increasing number of aquarium shops in Katabon pet market.

to 34 due to the popularity and demand of the business. The majority of the shops of aquarium fish are located in Dhaka city [18].

Another study [18]. Stated that there are only 2 shops in Rajshahi city, while 12 shops are found in Khulna city.

[18]. Found that at least 30 aquarium shops are available in the Katabon market of Dhaka city where all kinds of aquarium products can be found.

Aquarium fish price depends on varieties, species, size, and breeding status (local or imported). Considering the price of cheap species, it can be said that aquarium hobby is not only for elite society people but also for common people as well. Due to the demand and profitability, this business spread drastically. So, aquarium fishes and other fisheries items are and will be of great potential judging by the circumstance in our country.

Aquarium and aquarium accessories

Aquarium accessories also play a vital role in the trade. Beyond sales of the aquarium, air pumps, food, medications and other supplies, the primary product of the aquarium industry is fish [7]. Katabon market, the most common and popular market in Dhaka city for aquariums and other aquarium products like aquarium fishes, aquarium foods, chemicals, toys, plants, etc.

Aquariums

There are various types of aquariums according to their shape and size. Some are suitable for fish keeping, breeding and others are for ornamentation. Price differs due to the size, shape as well as thickness of glass or aquarium building material Tables 5,6.

Aquarium decoration toys are mainly used to enhance the beauty and appearance of an aquarium. Such as plastic plants, artificial streams, water flow, etc. Aquarists can add various decorative stuff which can be beneficial for fish as well Figure 7.

During the study it was found that 70% of hobbyists were having rectangular shape aquariums, 25% ball shape and 5%



Table 5: General types of aquariums with their shape, size, and price.

Building material	Aquarium thickness (mm)	Aquarium shape	Aquarium size (length × width × height) feet	Price (BDT/ per set)
Glass	5mm	Rectangle	1.5×1×1 (feet)	1500-2000
Glass	5mm	Rectangle	2×1×1 (feet)	3000-3500
Glass	5mm	Rectangle	3×1×1 (feet)	6000-6500
Glass	5mm	Rectangle	3×1×1.5 (feet)	7000-8000
Glass	5mm	Ball jar	Small	150-180
Glass	5mm	Ball jar	Medium	250-280
Glass	5mm	Ball jar	Large	360-480
Crystal glass	5mm	Rectangle	2×1×1 (feet)	5000-6000
Crystal glass	5mm	Rectangle	3×1×1 (feet)	10000-12000
Crystal glass	8mm	Rectangle	6×2×3 (feet)	40000-42000

Table 6: Exceptional types of aquariums and their price.

Types of aquariums	Price (BDT/ per set)
USB desktop aquarium	3000
Mini Desktop Aquarium (full set-Black)	3300
Wall hanging acrylic fish tank flowers vase 22cm mirror back	2800
Glass Vase and Aquarium - Transparent	950
Glass Vase and Aquarium	1100
SOBO Mini Fish Aquarium (Blue)	5500
All in One Smart Aquarium (LAT-40)	11000
Betta Tank- DoPhin BT 104	1000
Betta Flora Tank (Blue)	2500

species are carnivores, some are herbivores, and others other omnivores. According to the different life stages also varies as well Table 7.

Turtle food

Table 8.

Aquarium air pumps or aerators

Aquarium air pumps or aerators' main purpose is to produce Oxygen by creating water flow. It is vital to have a sufficient amount of oxygen in the aquarium water to keep fish healthy and alive. Numerous types of aerators were observed during the study Table 9.

Table 7: List of aquarium fish food items.

Fish food types	Sub food types	Commercial brands	Amount (gm)	Price (BDT/ per packet)
Dry foods	Flakes	Tetra bits flakes	200g	700
		Taiyo tropical flakes	93g	250
		Prime reef flakes	34g	800
	Pellets	Nova	100	80
		Osaka green-1	100	100
		Optimum	100	85
		Optimum micro pellet	50	120
		Osaka-2000	100	80
		Optimum cichlid pellet	300g	350
		Ultima	100	100
		Ultima betta food	20g	80
		Ultima micro pellet	50g	100
		Taiyo	100g	60
		Taiyo hi-red	100g	150
		Taiyo cichlids	100	190
Hikari micro pellets	22g	400		
DR. Fish economy fish food	100	450		
Fish food types		Hong Shi Mei- Betta food	50g	120
		Hikari Marine S	50g	750
		Tetra bits complete fish food	375g	1150
	Cripes	Taiyo bits complete fish food	120g	350
		Blood worms	Taiyo blood worms	320g
	Tubifex	Taiyo tubifix	10g	120
		Siso tubifex worm	80g	1250
	Dried Shrimp	Taiyo dried fresh shrimp	25g	400
		Spirulina	Tetra spirulina	
	Food sticks	Hikari tropical food sticks	57g	550
		Taiyo cichlids sticks	50g	190
	Seaweed	Hikari seaweed extreme	90g	1500

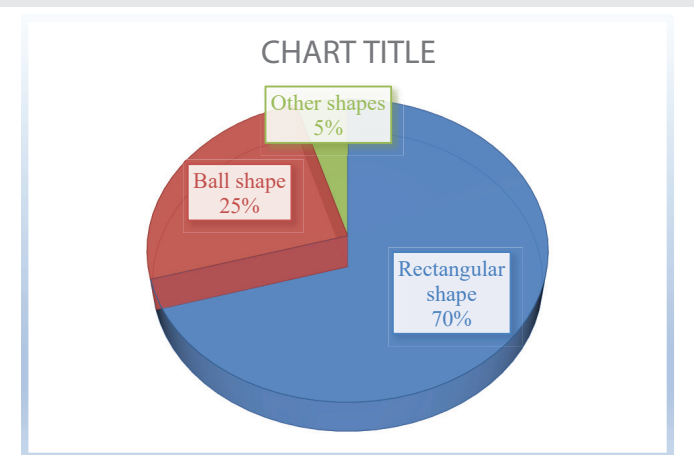


Figure 7: Percentage of aquarium shapes according to the hobbyist preference.

were having other shapes (hexagonal, cube). Mohsin, *et al.* [22]. Described preferences for rectangular shape 69% and ball shape jar 29% in Rajshahi city, Bangladesh. Arif, *et al.* [23]. Found that 80% of the hobbyists were having rectangular shape aquariums and 20% had round shape aquariums in Sylhet Sadar Upazila, Bangladesh.

Foods used in aquarium

On the basis of the diet, there are different types of aquarium fishes having different preferable aquarium fish food. Some

Aquarium filters and gravels

Aquarium filters are used to keep the aquarium water clean by removing pollutants (fish waste, degraded food, ammonia, and toxic materials). There were various types of gravels found among the most commonly used were black and white crust gravels. Gravel is mainly used for the sedimentation of water products and keeps the water clean. Gravel prices generally range from 20–40 (BDT/kg) Table 10.

Aquarium water heaters

Aquarium heaters are used to maintain the optimum water temperature in the aquarium. Especially in the winter water temperature drops to a critical level which is detrimental for fish health and may lead them to death. Popular heaters are used by the aquarists in Bangladesh Table 11.

Aquarium medicines

Aquarium medicines are used for the treatment of contaminated organisms and aquarium water. Some medicines were listed during the study period such as Table 12.

Economic importance of aquarium fishes

During the study, it was found that the price of aquarium fish is much higher than culture fish which is taken as food. The proportion between the space required for aquarium fishes and culture fishes is very significant. Aquarium fishes need a little amount of space to maintain, breed and the management cost is very low compared to the price.

Table 8: List of aquarium turtle food items.

Food types	Commercial brands	Amount (gm)	Price (BDT/ per packet)
Dry food	Taiyo turtle food	1000g	400
	Hello pets	100g	80
	Inch-gold	40g	100

Table 9: List of aquarium air pumps.

Air pump	Price (BDT/per piece)
Aquarium air pump SOBO SB -248A	250
Aquarium air pump SOBO SB- 350A	350
SOBO 360-degree aquarium super wavemaker	3000
Solar oxygenator	1480
Atman air pump	1600

Table 10: List of aquarium filters.

Aquarium filter	Price (BDT/per piece)
Aquarium internal filter SOBO WP -320F	350
Aquarium internal filter SOBO WP -1200F	500
Aquarium internal filter SOBO WP -3000F	1200
Aquarium internal filter SOBO WP -320F	400
Aquarium internal filter Xinyou XY -2835	150
Aquarium top filter SOBO WP -1880F	1550
External filter- Resun cyclone CY20	2500
External hang on filter -330L/h	7200

Table 11: List of aquarium heaters.

Aquarium heaters	Price (BDT/per piece)
Sobo aquarium heater 50W	500
Sobo aquarium heater 150W	700
Sobo aquarium heater 200W	550
RS electrical 300 watts aquarium heater	550
Aqua heater- Periha	1000
Periha Aqua heater HB-200	1500
Periha Aqua heater T-300W	1200
Shanda glass heater (SGH-318)	400

Table 12: List of aquarium medicines.

Medicine name	Amount	Price
Aqua grow plant nutrition	100 ml	450
Herbtana reef and marine	473 ml	3000
Aqua grow + Plant nutrition	100 ml	250
Aqua grow + Plant nutrition	250 ml	300
Aquaguard anti chlorine by porpoise	150 ml	350
Aquarium Additive (Super 4) by ADA	100 ml	400
Bonuses-Concentrated Nitrifying Bacteria	150 ml	300
Coral Pro Salt	22 kg	9000
Coral Pro Salt	7 kg	3000
Dr. Aqua- Anti Fungus Special	120 ml	110
Medicine name	Amount	Price
Dr. Aqua- Anti White Spot	120 ml	110
Dr. Aqua- Antichlor Special	120 ml	110
Dr. Aqua- Antirod Special	120 ml	110
Esy Clo(antichlorine)	100 ml	300
Green Bacter- ADA Nature Aquarium	100 ml	2000
Leecom Antichlor-Medicine	120 ml	250
Plant Plus- Natural Plant Food by White Crane	25 ml	350
Bonuses Aquaguard (anti-chlorine)	150 ml	350
Shanda- Saltwater Microelement Phosphorus	120 ml	550
Shanda- Bacterial Killer	120 ml	500
Sera- Crystal clear aquarium water	250 ml	500
Star- Aquarium salt	10 gm	30
Star- Methylene blue	20 ml	30
Star- Water cleaner	20 ml	30

On the other hand, culture fish species need a lot of space, maintenance costs, and comparing to the price. For example, the price of Thai pangasius (*Pangasius hypophthalmus*) is 90–120 BDT/kg but the same species are known as tiger sharks keep in the aquarium an 80–360 per pair which is a much higher price than its cultural value.

The top 3 highly-priced aquarium fishes were found as- Golden Arowana (20000–80000 BDT/pair), Black Arowana (18000–45000 BDT/pair), and Ocellate River Stingray (15000–25000 BDT/pair) Table 13.

[18]. Recorded silver Arowana as the most expensive

species (30000 BDT/pair), Koi carp (12000 BDT/pair), and Tiger shovelnose (4000 BDT/pair).

Rahman, *et al.* [19]. Found red parrot as the most expensive species (1000–1500 BDT/pair), in their study followed by discus (800–1000 BDT/pair) and oscar (400–600 BDT/pair).

Arif, *et al.* [23]. Mentioned discus as the most expensive species (1500 BDT/pair), parrotfish (1000 BDT/pair), and oscar (650 BDT/pair) Table 14.

Table 13: Top ten highly-priced aquarium fish species.

SL	Species name	Habitat	Price range according to size (BDT/pair)
1	Golden or Asian Arowana	Freshwater	20000-80000
2	Black Arowana	Freshwater	18000-45000
3	Ocellate River Stingray	Brackish water	15000-25000
4	Silver Arowana	Freshwater	7000-18000
5	Emperor angelfish	Marine water	7000-15000
6	Sailfin tang	Marine water	7000-14000
7	Foxface	Marine water	6000-12000
8	Bluegirdled angelfish	Marine water	6000-12000
9	Blacktail angelfish	Marine water	5500-12000
10	Spotted surgeonfish	Marine water	6500-10500

Table 14: Top ten cheap aquarium fish species.

SL	Species name	Habitat	Price range according to size (BDT/pair)
1	Multi-color Guppy	Freshwater	40-60
2	Black Molly	Freshwater	50-80
3	Tiger barb	Freshwater	60-80
4	Zebra danio	Freshwater	60-80
SL	Species name	Habitat	Price range according to size (BDT/pair)
5	Tuxedo Platy	Freshwater	60-80
6	Mickey mouse sword tail	Freshwater	80-120
7	Rosy barb	Freshwater	80-120
8	Blue gourami	Freshwater	80-120
9	Rainbow shark	Freshwater	120-140
10	Marble angelfish	Freshwater	40-450

Conclusion

Considering the present study, it was very much clear that the current situation of the aquarium business had become a potential commercial sector in our country. Connecting the past and present studies observation it can be stated that the popularity, diversity of aquarium fisheries products, and the number of shops had drastically increased. In the past, most of the aquarium fishes were imported from foreign countries but according to the current study 23 species under 76 varieties were locally bred by our hatcheries and local breeders. Marketing had become more flexible; customers can purchase aquarium fish and other products by ordering them in online

shops as well as by going to the shops. Aquarium fish cost, management, and space are much less than culture fish. Due to the immense potentiality, the sector is not contributing to national GDP. If we raise our concern and realize the value of the sector and properly nurture it will become one of the remarkable foreign currency income sources in the near future.

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