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Hobbyist's preferences and trends in aquarium fish business at Sylhet Sadar Upazila, Bangladesh

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Abstract

A quest was conducted for the initial assessment of hobbyist's preferences for aquarium keeping and present trends in aquarium fish business at Sylhet Sadar Upazila for a period of six months from April to September 2017. The aquarium shop owners found to sell ornamental fishes, new aquariums and aquarium accessories such as artificial plants, lights, stones, heaters, aerators, feeds, medicines etc. In case of hobbyist, it was found that most of them (40%) were youngsters and in the age group of 20-30 years. In the present study, 40% aquarium users were having less than 2 years experience and 36% were having 3 to 5 years experience in aquarium keeping. Maximum number of the users (70%) was keeping aquarium fish for their attractive color, 20% for their behavior and 10% for others activities performed by aquarium fish. Only 22 species of ornamental fish recorded to be sold in the surveyed shops belonging to 4 orders- Perciformes (45.45%), Cypriniformes (40.91%), Siluriformes (9.09%) and Characiformes (4.55%). The price of a pair of ornamental fish in Sylhet sadar ranged within BDT 50-1500. The highest retail price (1500 BDT/pair) was for Discus fish followed by Red Parrot (1000 BDT/pair) and Oscar (650 BDT/pair). All the recorded species were exotic and all those fish were brought from Katabon area of Dhaka city and Chittagong city. There was no local aquarium fish hatchery found in the study. Most of the shop owners (80%) were having experience in aquarium trade for less than five years. As a means of business promotion strategy Facebook (40%), Bikroy.com (40%) and visiting cards (20%) were used by the shop owners. This indicates a greater dependence on internet for business promotion by the aquarium shop owners. Transportation of fish and diseases were identified as main difficulties in aquarium business.

Keywords: Aquarium, aquarium fish, hobbyist, trend

1. Introduction

Bangladesh is a small riverine country situated in the South East Asia of the world. It is blessed with vast water resources and enriched by 260 indigenous species, 12 exotic species, 24 prawn species, 36 shrimp species and 475 marine species [3]. Now-a-days, farmers and investors are very much interested to move their business on more diversified fields such as crocodile culture, pearl culture, aquarium fish trades etc. [7]. Aquarium fish business is becoming very popular throughout the world as its easy operating system and less operating costs. Beyond sales of aquaria, air pumps, food, medicines and other supplies, the primary product of the aquarium industry is fish [2]. An aquarium is an enclosed body of water containing a mixture of selected and unselected captive living aquatic organism. It is essentially unstable and to obtain stability must be carefully designed and managed [9]. Ornamental fishes usually mean attractive colorful fishes of various characteristics, which are kept as pets in confined space of an aquarium or a garden pool for fun and fancy. Ornamental fishes are usually kept in glass aquarium and hence popularly known as "Aquarium Fishes". These living jewels need not always have bright colours; as sometimes their peculiar characteristics such as body colour, morphology, mode of taking food etc. may also add to their attractiveness [11]. Ornamental fish keeping is a popular hobby in developed countries and is gaining popularity in many developing countries. The growing interest in aquarium fishes has resulted in steady increase in aquarium fish trade, globally [10]. In 1992, colorful fishes were imported in our country for the first time and the business was confined in some limited shops of Katabon area of Dhaka city. But now this business is very common in all over the country [1]. Traditionally, the people of Sylhet are pleasure seeker in nature and there is a great

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potential for aquarium fish business. But, unfortunately no remarkable studies have been carried out on aquarium fish business in Sylhet sadar in Bangladesh. Considering the importance of this newly emerging sector, an attempt has been made to assess the aquarium fish trade in Sylhet sadar of Bangladesh.

2. Materials and method

The study was carried out in Sylhet Sadar Upazila for a period of 6 months from April to September 2017. A pre-survey was carried out in Sylhet Sadar Upazila to accumulate information of available aquarium shops. The primary data have been collected through the survey of aquarium hobbyists and aquarium keepers. In order to collect the data, field survey was conducted. The simple random sampling method was used for data collection. The sample size was 5 individual respondents of aquarium shopkeepers and 30 respondents of aquarium hobbyists. The responses of each respondent were compiled and tabulated to indicate frequency and percent distribution for different categories of the questionnaires.

3. Results and discussion:

3.1 Demographic features and profile of aquarium shopkeepers

The results pertaining to the demographic features and profile of aquarium shop owners and their trade are presented below:

3.1.1 Aquarium shopkeepers age

Most of the (60%) shopkeepers were in the age group of 30 to 40 years, 20% were in the age group of 20 to 30 years and remaining 20% were more than 40 years old (Fig.1) while Sharma *et al.* [8] found (58.3%) shop owners were in the age group 30 to 40 years in Kota district of Rajasthan, India. Faruk *et al.* [4] found all the traders interviewed were male with an average age of 37 years in Dhaka city.

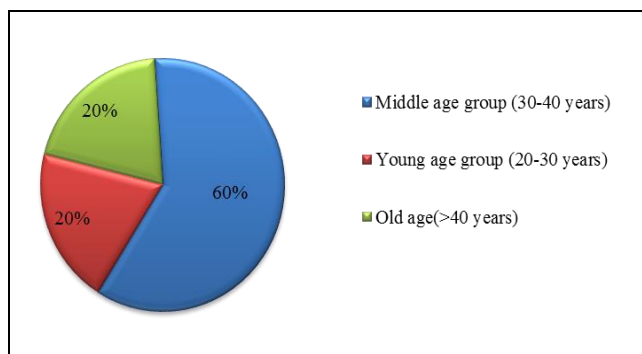


Fig 1: Age group of aquarium fishkeepers

3.1.2 Educational status of the shopkeepers

The educational qualification of 20% shopkeepers was below SSC level, however 40% of them were having education up to SSC level and 40% were HSC level (Fig. 2). Sharma *et al.* [8] found educational qualification of 50% shop owners below 12th standard, however 25% of them were having education up to graduation level and 25% were postgraduate.

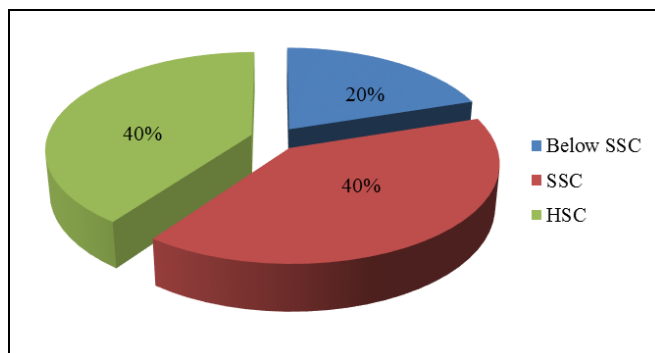


Fig 2: Educational statuses of the shopkeepers

3.1.3 Experience in aquarium fish business

Maximum number (80%) of these shopkeepers were having experience in aquarium trade for less than five years; however, 20% of them were having more than five years experience in this business while Faruk *et al.* [4] recorded the gross experience ranged from 6 months to 19 years with an average of 9 years. Sharma *et al.* [8] found 66.6% of shop owners were having experience in aquarium trade for more than five years, however, 16.6% shop owners were having less than two years' experience in this business.

3.1.4 Area of aquarium shop

The floor areas of 60% shops were more than 150 sq. feet, 40% were having an area of 100-150 sq. feet.

3.1.5 Customer visiting per day

All the responses received showed that minimum 10 to 15 customers visit in 20% shop per day, whereas 15 to 30 customers in 60% shops and more than 30 customers in 20% of aquarium shop per day (Fig. 3). Faruk *et al.* [4] found each shop faced an average 15 customers daily in his study. Sharma *et al.* [8] found that minimum 3 customers visited in one shop, whereas 5 to 15 customers visited in 41.66% shops and more than 15 customers were visiting in 50% of aquarium shop.

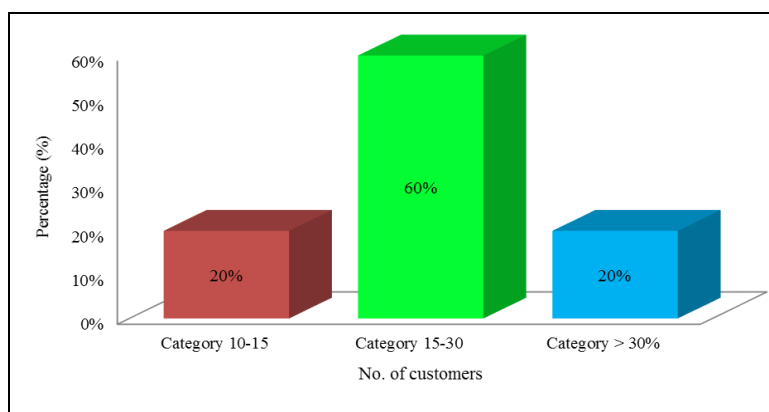


Fig 3: Average number of customers visiting per day

3.1.6 Sales promoting strategies

In case of sales promotion, maximum number (80%) of the shopkeepers found to provide discount rate for their customers. Whereas, 20% shopkeepers were providing free establishment services of new aquarium tank while Sharma *et al.* [8] found almost all the dealers were establishing the aquarium tank without any cost on purchase of new tanks.

3.1.7 Source of aquarium fishes dry items

All the recorded species were exotic. It was found that average 60% of ornamental fishes and dry items in Sylhet sadar come from Katabon fish market, whereas only 40% fishes were collected from Chittagong city. There was no

local aquarium fish hatchery found in the study. Galib *et al.* [5] also stated that all the available species in Jessore were exotic fish and brought from Katabon area of Dhaka city.

3.1.8 Upgradation of knowledge

The shopkeepers had to upgrade their knowledge to keep pace with new trends and modern technologies. 60% of them update their knowledge through internet surfing, 20% from visiting aquarium shows and the rest 20% from customer feedbacks (Fig. 4). Sharma *et al.* [8] found internet surfing 57.1%, visiting aquarium shows 23.8%, reading magazine or books 4.7% and customer feedback 14.2% as methods of knowledge upgradation.

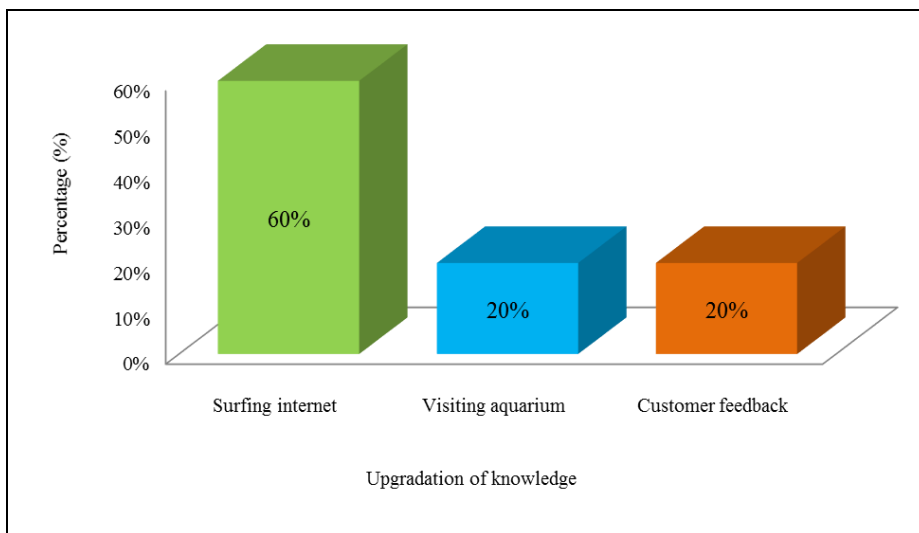


Fig 4: Upgradation of knowledge by aquarium keepers

3.1.9 Average annual income

Sixty percent (60%) were belonged to low income group with annual earnings in the range of BDT 1-5 lakh, followed by consumers of high income group with earnings above BDT 5-10 lakh (40%).

3.1.10 Price range of aquarium

Most of the aquariums (40%) were selling at price range of BDT 3000-10000. Whereas, 20% aquarium were at BDT 1000-3000 and the large aquarium (40%) were selling at a price of (BDT >10000). Average numbers of aquarium (672)

were sold during the year 2015-16. Whereas, 250 aquarium in 2012-13, 350 aquarium in 2013-14 and 500 in 2014-15.

3.1.11 Business promoting strategies

For business promotion, aquarium shopkeepers adopt various strategies, mainly advertisement through Facebook and Bikroy.com. 40% of the shopkeepers were using facebook for business promotion, 40% Bikroye.com and rest (20%) visiting cards. Sharma *et al.* [8] found business promoting strategies mainly as through hoardings, TV ads on local cable network or through newspapers.

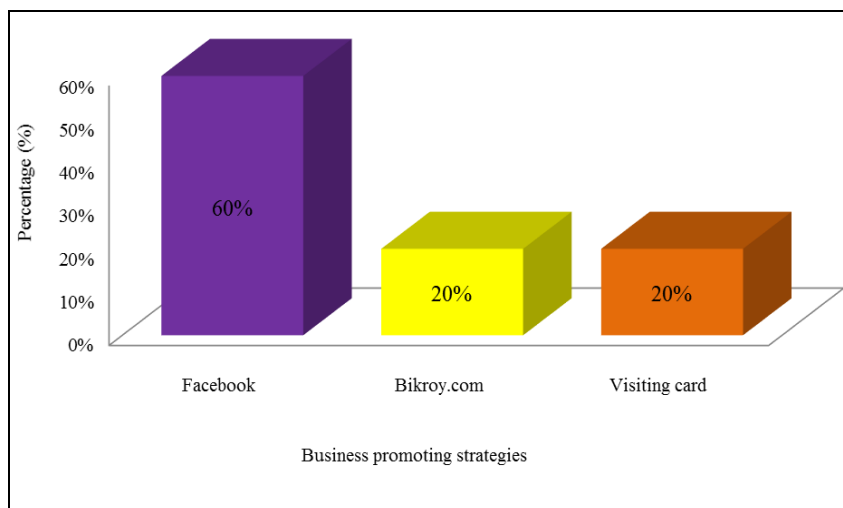


Fig 5: Business promoting strategies

3.1.12 Difficulties in business

The main difficulties in aquarium business were transportation of fish (60%) and diseases (40%) as described by the shopkeepers.

3.2 List of available Ornamental fish species

Prices of ornamental fish changes according to season, supply and profit margin. The list of commercially important ornamental fishes available in aquarium shops, their prices and size is mentioned in Table.1. Only 22 species of ornamental fish were recorded to be sold in the surveyed

shops belonging to following fish orders- Perciformes (45.45%), Cypriniformes (40.91%), Siluriformes (9.09%) and Characiformes (4.55%) (Fig. 6). Mohsin *et al.* [6] recorded twelve aquarium fish species in Rajshahi city while Galib *et al.* [5] found 17 varieties of ornamental fish to be sold in the surveyed shops belonging to 3 orders- Cypriniformes (52.94%), Perciformes (23.53%) and Siluriformes (23.53%). Faruk *et al.* [4] found a total of 26 species of ornamental fishes including two indigenous species at different shops of Katabon market.

Table 1: Available aquarium fishes and their prices

Sl. No.	Order	Family	Local name	Scientific name	Price (BDT/ pair)
1.	Cypriniformes	Cyprinidae	Gold fish	<i>Carassius auratus</i>	150
2.	Cypriniformes	Cyprinidae	Comet	<i>Carassius auratus</i>	150
3.	Cypriniformes	Cyprinidae	Tiger barb	<i>Barbus tetrazona</i>	100-120
4.	Cypriniformes	Cyprinidae	Yellow barb	<i>Labidochromis caeruleus</i>	200
5.	Cypriniformes	Cyprinidae	Silver shark	<i>Balantiocheilos melanopterus</i>	150
6.	Cypriniformes	Cyprinidae	Rainbow shark	<i>Epalzeorhynchus frenatus</i>	150
7.	Cypriniformes	Cyprinidae	Discus	<i>Symphysodon discus</i>	1500
8.	Cypriniformes	Cyprinidae	Koi carp	<i>Cyprinus carpio</i>	250
9.	Cypriniformes	Cyprinidae	Zebra	<i>Brachydanio rerio</i>	150
10.	Characiformes	Serrasalminidae	Silver dollar	<i>Metynnis argenteus</i>	250
11.	Siluriformes	Pangasiidae	Tiger shark	<i>Pangasius hypophthalmus</i>	150
12.	Siluriformes	Loricariidae	Sucker mouth	<i>Plecostomus punctatus</i>	200
13.	Perciformes	Osphronemidae	Golden gourami	<i>Trichogaster trichopterus</i>	120
14.	Perciformes	Osphronemidae	Blue gourami	<i>Trichogaster trichopterus</i>	120
15.	Perciformes	Helostomatidae	Kissing gourami	<i>Heloistoma temminkei</i>	250-350
16.	Perciformes	Cichlidae	Angel	<i>Pterophyllum scalare</i>	150-300
17.	Perciformes	Cichlidae	Parrot	<i>Scarus rivulatus</i>	1000
18.	Perciformes	Cichlidae	Oscar	<i>Astronotus ocellatus</i>	650
19.	Perciformes	Poeciliidae	Black moly	<i>Poecilia sphenops</i>	80
20.	Perciformes	Poeciliidae	Guppy	<i>Poecilia reticulata</i>	50
21.	Perciformes	Chaetodontidae	Butterfly	<i>Pantodon buchholzi</i>	350
22.	Perciformes	Ambassidae	Glass fish	<i>Kryptopterus bicirrhis</i>	150-200

The price of a pair of ornamental fish in Sylhet sadar market was ranged within BDT 50-1500. The highest retail price was found for Discus fish (1500 BDT/pair) followed by Red Parrot (1000 BDT/pair) and Oscar (650 BDT/pair). Galib *et al.* [5] found highest retail price for large silver shark was (123.33±40.41 BDT/pair) followed by goldfish (106.67±11.54 BDT/pair) and black moor (105.00±39.05 BDT/pair). Faruk *et al.* [4] documented price of a pair of

ornamental fish at Katabon market ranged within BDT 60-10,000. The most demandable species of ornamental fish were gold fish, comet fish, angel fish, guppy, and black moly. Faruk *et al.* [4] described the most demandable species of ornamental fish were gold fish, comet fish, koi carp, angel fish, platy, guppy, fighter fish, parrot fish, and discuss fish in Dhaka city.

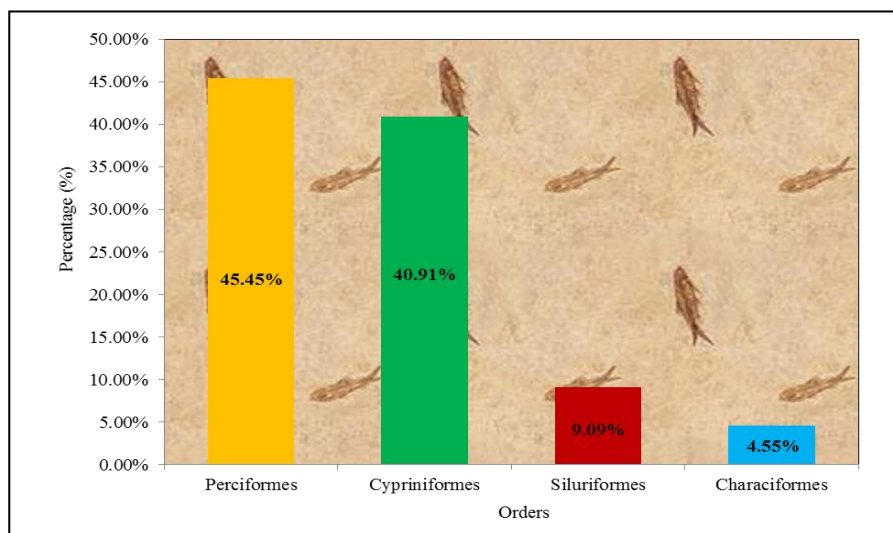


Fig 6: Diversity of order of different ornamental fish species

3.2.1 Available aquarium fish feed and their prices

Feed is essential component for rearing ornamental fishes. There are several types of feed in the market. During the study period, Osaka, Nova and Optimum were sold at a rate of BDT 40-50/100g (Table.2).

Table 2: List of fish feeds and their prices

SL. No.	Feed name	Price (BDT/100gm)
1.	Osaka green-1	40-50
2.	Nova	40-50
3.	Optimum	40-50
4.	Taiyo grow	80-100

3.2.2 Available aquarium accessories and their prices

Different shape and size of air stone aerator, colorful stone, artificial aquatic plant and light were existed in the market which is essential part of aquarium. Available aquarium accessories were stone, plants, aerator and power filter, light and their price range from BDT 50, 50-1000, 180-700, 400-1800 and 60-150/kg, respectively (Table. 3)

Table 3: List of aquarium accessories and their prices

SL. No.	Items	Price
1.	Stone	50 (BDT/kg)
2.	Plants	50-1000 (BDT/ piece)
3.	Aerator	180-700 (BDT/ piece)
4.	Power filter	400-1800 (BDT/ piece)
5.	Light	60-150 (BDT/ piece)

3.3 Demographic features and profile of aquarium hobbyists

The demographic features and profile of aquarium hobbyists

are described below.

3.3.1 Age of aquarium hobbyists

The highest percentage (73%) of hobbyists belonged to young age group of (20 years to 30 years), followed by old age (more than 40 years) and middle age (30 to 40 years) groups with 10% and 17%, respectively (Fig. 7). This indicates that aquarium keeping is gaining popularity in young generation. Sharma *et al.* [8] found the age of aquarium hobbyist ranging from 20-30 years was maximum (40%) followed by the age group 30- 40 years (30.36%) whereas 24% customers were more than 40 years of age.

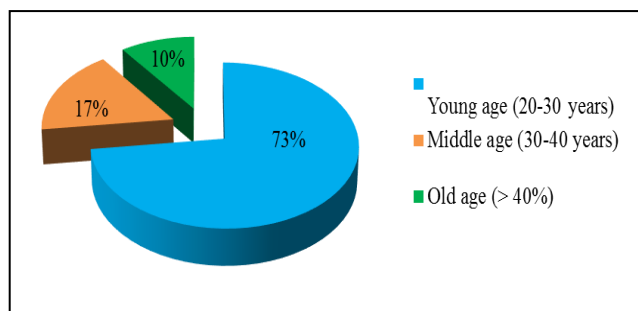


Fig 7: Age of aquarium hobbyists

3.3.2 Educational qualification of aquarium hobbyists

The study indicated that, most of hobbyists (40%) had graduation, followed by H.S.C. (33%) level education. Whereas, the 27% of the users had S.S.C. level education (Fig. 8). Selvarus and Sankaran [10] reported 44 % of respondent having graduation in their study.

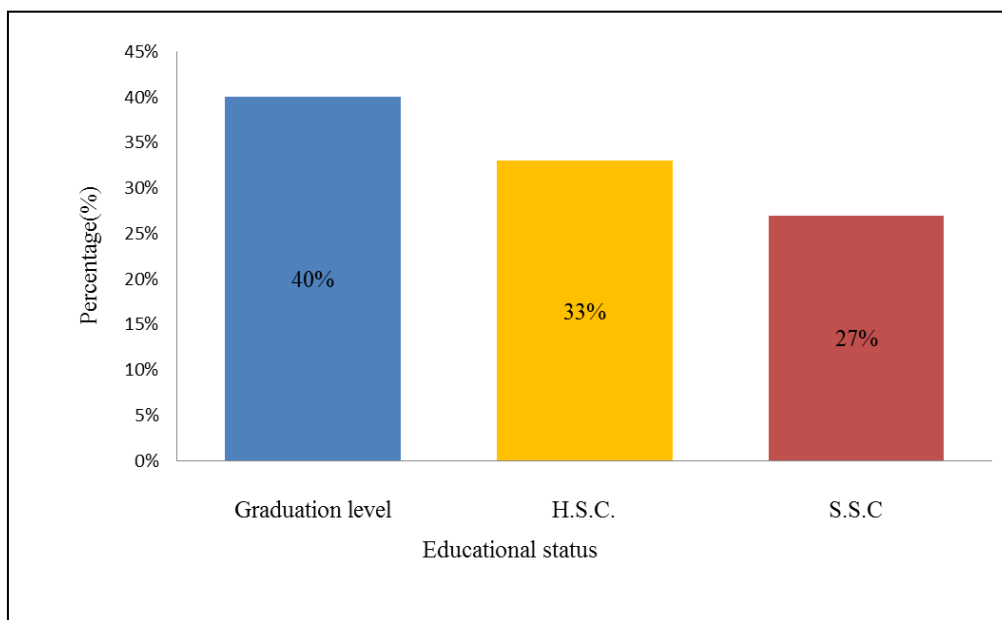


Fig 8: Educational statuses of aquarium hobbyists

3.3.3 Reasons for choosing ornamental fish keeping

From the study, it revealed that 60% hobbyists keep aquarium in their place of business or households for hobby, while 27% maintains for entertainment and 13% for decoration (Fig. 9).

Sharma *et al.* [8] found 24% of the hobbyists keep aquariums in their place of business or households, 32% of these maintain the aquarium for entertainment and 20% for decoration.

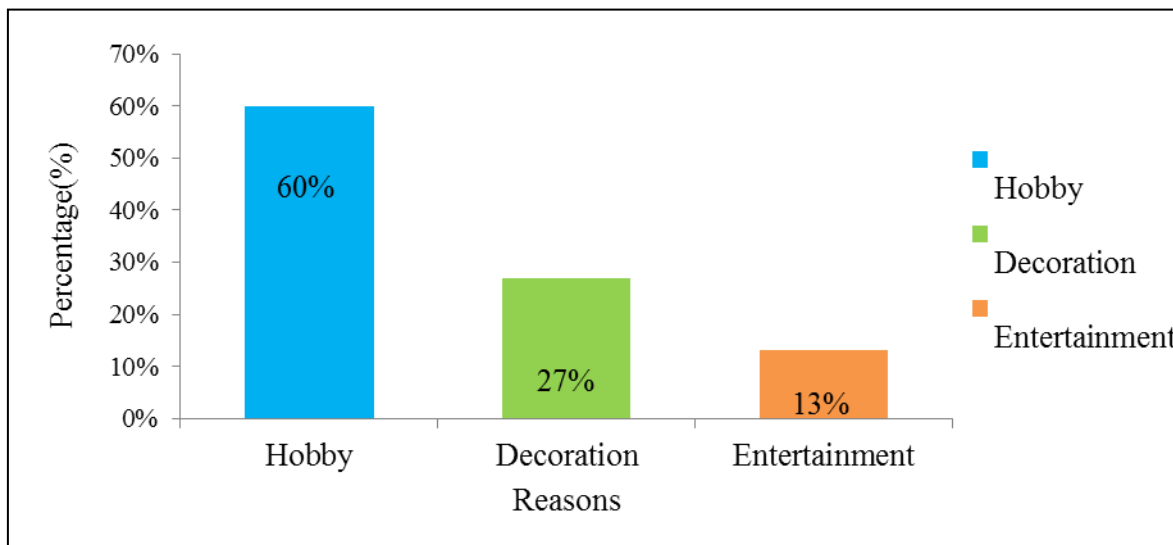


Fig 9: Factors influencing for ornamental fish keeping

3.3.4 Experience in aquarium keeping

Most of the hobbyists (50%) have recently established their aquarium, whereas 33% for 2 to 5 years, 17% were having their aquarium for more than 5 years. Selvarus and Sankaran [10] found 67% customers below 5 year of experience in aquarium keeping are more than and above 5 years of experience are 33%.

3.3.5 Demandable type of aquarium

Among the hobbyists, preferences were highest for community aquarium (83%), followed by single species (17%). Selvarus and Sankaran [10] documented more than 65% of the respondents prefer community type of aquarium and the rest 35% prefer single species aquarium.

3.3.6 Preferable size of aquarium

Maximum number of the customers (50%) were having small aquarium 1.5-2.9 feet long, whereas 33% customer were having 3-4 feet long and 17% were having more than 5 feet long aquarium.

3.3.7 Preferable shape of aquarium

It was found that 80% of the hobbyists were having rectangular shape aquarium and 20% having round shape aquarium while Mohsin *et al.* [6] described preferences for rectangular shape 69% and ball shape jar 29% in Rajshahi city.

3.3.8 Fish feed

97% of the customers were feeding their fishes with usual growth feed in the form of floating pellets and the rest 3% were found to feed their fishes preserved live food of either tubifex or daphnia.

3.3.9 Knowledge updating about aquarium keeping

Maximum number of (80%) customers gained knowledge through using internet, 13% of them gained knowledge through interaction of shop keeper and 7% through books and literature (Fig. 10). None of the respondents had ever joined a training program.

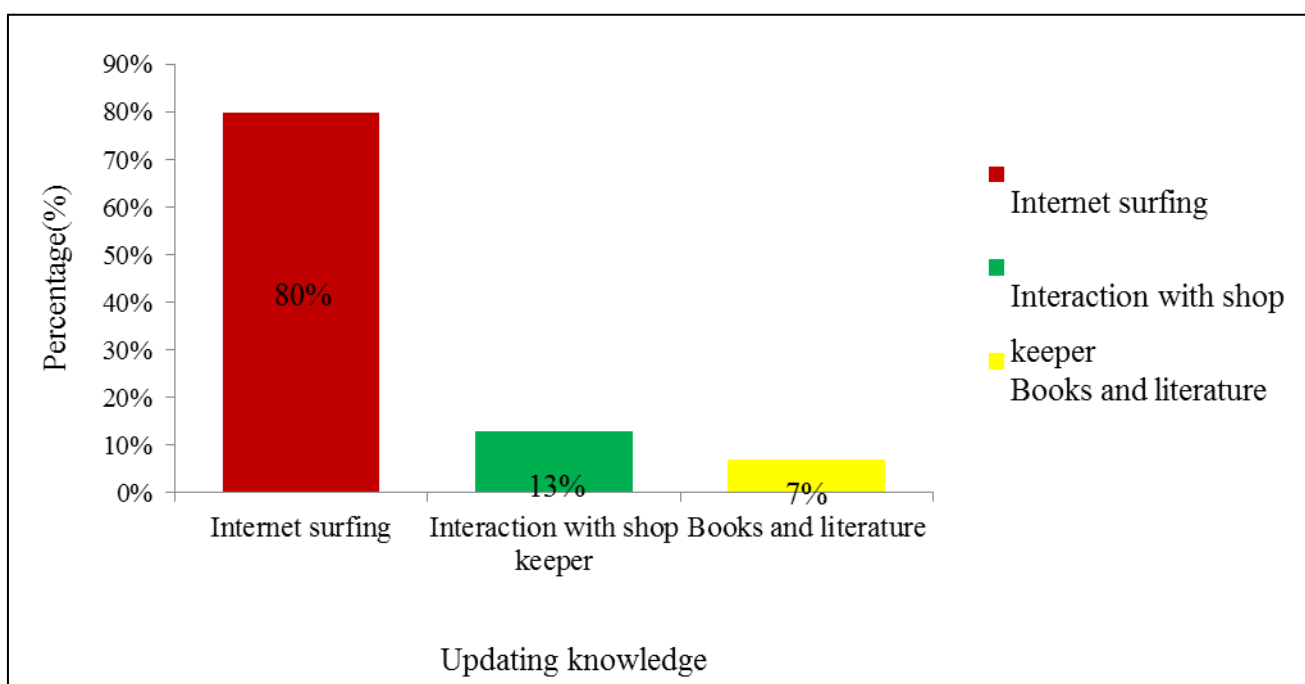


Fig 10: Percentage distribution of knowledge for updating business

3.3.10 Attraction in aquarium keeping

Maximum number of the users (70%) was keeping aquarium fish for their attractive color, 20% for their behavior and 10% for others activities performed by aquarium fish (Fig. 11).

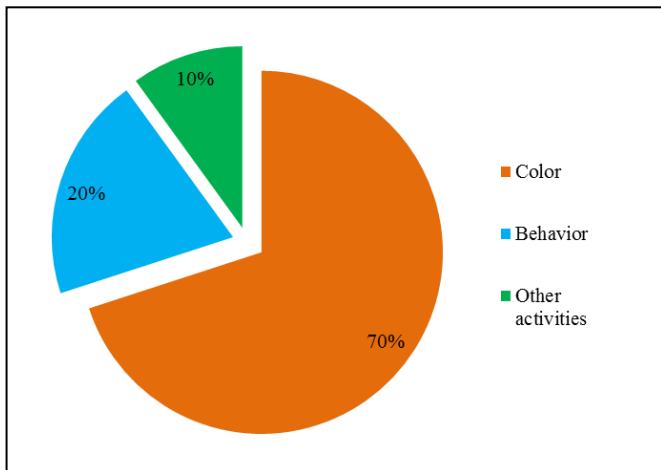


Fig 11: Reasons for keeping ornamental fishes

4. Conclusions

Keeping aquarium is considered as one of the finest branches of hobby as it has both aesthetic and recreational importance. Aquarium fish business is an emerging sector in Sylhet Sadar. There is a huge potential to augment this business if government takes necessary steps such as providing training, loan, incentives etc.

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