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Dry Fish Diversity and the Socio-Economic Condition of Dry Fish Retailers in the Markets of Kokrajhar, Assam, India

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Abstract: Dry fish is one of the most popular food items consumed worldwide. Dry fish preservation is reported as an alternative dimension to reduce both the quantity and quality loss of by-catch and results in better value addition. Preserved fishes are traditionally practiced in most tribal communities worldwide. In Assam, various fish preservation methods are adopted by different tribes. The present investigation aims to study the different dry fish available, and the socio-economic condition of the retailers in local markets of Kokrajhar, Assam, India. The study was conducted through semi-structured questionnaires and personal interviews in five different local markets of Kokrajhar Town in Assam. The study recorded 22 different fish species belonging to 15 families being used for making dry fish products. Four species were recorded from family Cyprinidae, two each from Clupeidae, Bagridae, Scombridae, Channidae and one species each from families Latidae, Engraulidae, Danionidae, Harpodontidae, Cobitidae, Ambassidae, Mastacembelidae, Osphronemidae, Siluridae and Botidae. The market values of dry fishes ranged from Rs. 200/kg to Rs. 950/kg depending upon species and quality. Dry fish made from the species *Raiamas bola* was found to be the highest priced. It was observed that the prices were comparatively higher in village markets than in town markets. Sun drying and smoking were found to be the most common method for the preparation of traditional dry fish in the region. The age of retailers was in the range of 30 to 60 years, and 69.24% of all the respondents were educated up to primary or higher level of education. The income of the dry fish retailers varied with the season ranging from Rs. 3000 to Rs. 10000 per month. This study has highlighted the diversity of dry fish in Kokrajhar, and the socio-financial status of the dry fish retailers. This information may be useful for sustainable development of fishery in the region.

Keywords: Dry fish, Kokrajhar, *Raiamas bola,* Cyprinidae, Clupeidae, Bagridae, Scombridae, Channidae

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Introduction

Dry fish which is consumed worldwide is a source of animal protein supplement, which can be consumed as a key dish or as a flavouring agent along with other food items (Purkait *et al*., 2018;

Aziz *et al*., 2019). Dry fish preparation is one of the world's oldest known preservation techniques (Balachandran, 2013; Aziz *et al.*, 2019; Debnath *et al*., 2020). It is one of the most affordable post-harvesting methods for the preservation of low-value fish which minimizes its loss and spoilage. Also, the nutritional value of dried fish is considered to remain intact, and sometimes even considered better in quality in comparison to fresh fish meat (Faruque *et al*., 2012; Payara *et al*., 2016; Madan *et al*., 2018; Purkait *et al*., 2018).

The fishery sector offers employment to several people in Assam (Yadav *et al*., 2020). This reflects the potential of the fishery sector in the state. The state is located between 21.57° N - 29.30° N latitude and 89.46° E - 97.30° E longitude covering an area of 78,438 km^2. It holds rich resources of water which include 5.49 lakh hectares of rivers, beels, ponds and low laying water bodies (Gogoi *et al*., 2015). Among the North-eastern states of India, Assam is one of the top fish-producing states. In Assam, the traditional fish preservation methods are adopted by different tribes. The Bodo tribes are the major ethnic community in the Kokrajhar district, and the preservation of fish through fermentation, smoking or sun drying is traditionally practiced by the community. Kokrajhar is a district of lower Assam gifted with abundant water resources such as the Diplai beel and Dheer beel, and several rivers such as Samoka, Swrmanga, Sankosh, Champabati, Gaurang, Gongia, Ultapani and their tributaries which serve as a source of freshwater fish. Dry fish products traditionally have been a part of Bodo culture since time immemorial. Although dry fish is very common in every household in Kokrajhar, Assam, its supply, marketing and distribution in local markets of Kokrajhar remains largely unorganized. There are some reports on efficiency and marketing channels or mechanisms (Kashyap *et al*., 2013; Madan *et al*., 2018; Aziz *et al*., 2019), preservation process and products (Sharma *et al*., 2013; Narzary *et al*., 2019; Kalita *et al*., 2020) of dry fish of different tribes living in N.E. India. However, through a survey of the literature, it was observed that no report is available on the diversity and marketing aspects of locally available dry food fish in the Kokrajhar district, Assam, specifically of the Bodo tribes in the region.

Fish and fishery products are among the most important agricultural commodities providing a significant contribution to the world's food security and economic development (Bene, 2006). For a remote and economically backward region such as Kokrajhar, where the majority of the population belongs to the tribal communities, the tradition of preparing dry fish in rural areas, apart from providing nutrition also serves as a means for supporting the socio-economic condition of the poor people. Understanding and documenting the different types of dry fish may be important in the sustainable development of fisheries in the region. Therefore, the aim of the present study was to study the diversity of dry fish, their marketing and the socio-economic status of dry fish retailers in five different local markets of Kokrajhar Town, Assam, India.

Materials and Methods

Study Area:

The study was conducted in the five local fish markets of Kokrajhar, Assam (Fig. 1). Kokrajhar district, which is located between 89°46'E and 90°38'E longitude and 26°19'N to 26° 54'N Latitude, is the headquarter of Bodoland Territorial Region (BTR), Assam. The region covers an area of about 3,169.22 square kilometers (Daimari *et al*., 2019). The district is surrounded the by Sonkosh River, Cooch Bihar and Jalpaiguri district in the West, Bhutan towards the North and the riverine tract of Brahmaputra valley in the South along with Chirang district (Narzary *et al*., 2016). The district, also known as the global center of Bodo culture, is multi-ethnic with the inhabitation of several communities. The major communities include Bodo, Garo, Santhali, Rabha, Rajbongshi, Bengali and Nepali with the Bodos as the major group (Narzary *et al*., 2016). As per the Government of India Census 2011, the total population of the district was reported to be 8,86,999 with 4,34,034 females and 4,52,965

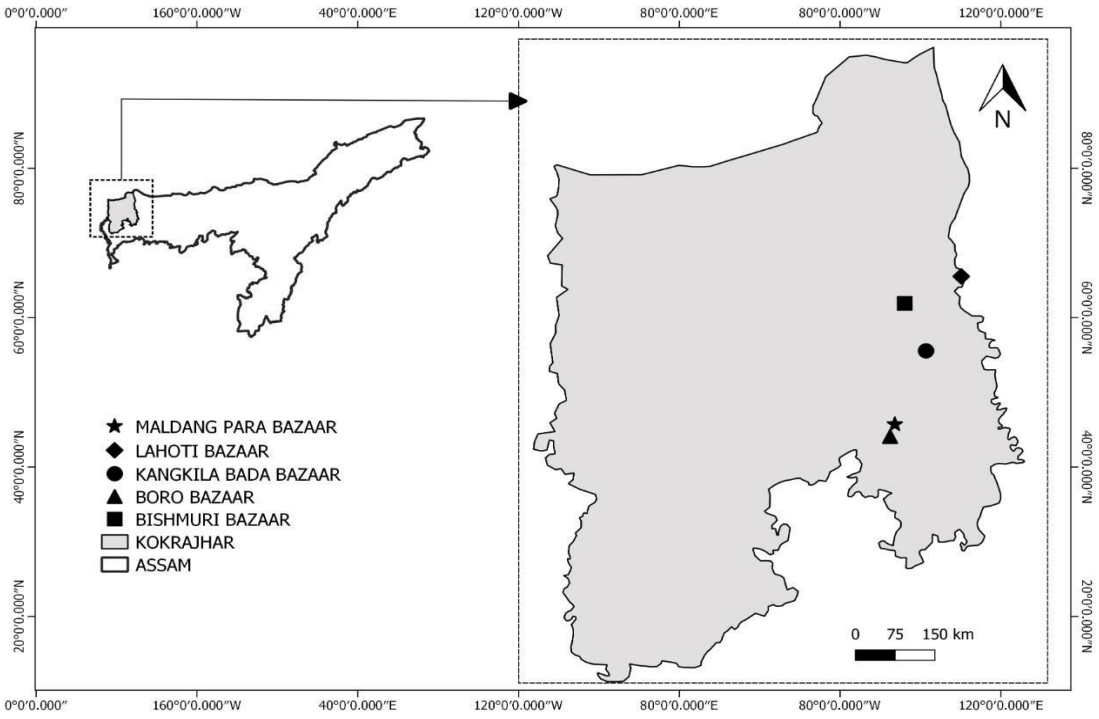

Fig. 1: Map showing the study area and location of the five markets in Kokrajhar, Assam, India.

males with the sex ratio of 958 females per 1,000 of males.

Survey sites and Data Collection:

The present study was carried out in five local fish markets in Kokrajhar (Fig. 1). These were Maldangpara bazaar (26°24.846'N, 90°16.579'E) and Boro bazaar (26° 33.984'N, 90°16.193'E) in Kokrajhar town area, and three markets in the village areas viz. Lahoti bazaar (26°35.444'N, 90°21.846'E), Kangkhila Bada bazaar (26°30.113'N, 90°19.056'E) and Bishmuri bazaar (26°33.585'N, 90°17.558'E). The survey was conducted between 15:00 and 18:00 h based on the market timings and maximum availability of dry fish sellers and retailers. Primary data were collected through semi-structured questionnaires and face-to-face interviews with the dry fish retailers.The sampling survey was conducted once every week from September, 2021 to March, 2022 through the questionnaire survey and scheduled direct interview with the informant, which was designed to collect information about the type of dry fish, species used, preparation, sources, pricing, marketing and the socio-economic condition of the dry fish retailers. A total of 26 retailers from the five selected local markets participated in the questionnaire survey. Samples of dry fish were collected, photographed and identified with the help of standard keys and references (Jayaram, 1994; Vishwanath, 2017; Frose and Pauly, 2022).

Results

Dry fish species:

A total of 22 different types of dry fish prepared from different species were recorded from the five markets in the present study. Table 1 depicts the local vernacular name (Bodo), scientific name, family, order and IUCN conservation status of different fish species recorded in the study. The survey revealed that fish species belonging to 15 families were being used for the preparation of dry fish. Maximum diversity was observed in the order Cypriniformes with 7 species (Fig. 2). Moha (*Amblypharyngodon mola*), Maowa (*Esomus danrica*), Pitikri (*Puntius sophore*), Bhol (*Raiamas*

Table 1: List of different dry fish species recorded in the five different markets of Kokrajhar, Assam, India

Local name (Bodo)	Scientific Name	Family	Order	IUCN Status
Moha	*Amblypharyngodon mola*	Cyprinidae	Cypriniformes	LC
Bwtia	*Botia dario*	Botiidae	Cypriniformes	LC
Maowa	*Esomus danrica*	Cyprinidae	Cypriniformes	LC
Bwtia	*Lepidocephalichthys guntea*	Cobitidae	Cypriniformes	LC
Pitikri	*Puntius sophore*	Cyprinidae	Cypriniformes	LC
Bhol	*Raiamas bola*	Cyprinidae	Cypriniformes	LC
Chela	*Salmostoma acinaces*	Danionidae	Cypriniformes	LC
Gwri	*Channa punctata*	Channidae	Anabantiformes	LC
Sol	*Channa marulius*	Channidae	Anabantiformes	LC
Bengshi	*Trichogaster fasciata*	Osphronemidae	Anabantiformes	LC
Tengwna	*Mystus tengara*	Bagridae	Siluriformes	LC
Rita	*Rita rita*	Bagridae	Siluriformes	LC
Barli	*Wallago attu*	Siluridae	Siluriformes	VU
Chapila	*Gudusia chapra*	Clupeidae	Clupeiformes	LC
Ilish	*Tenualosa ilisha*	Clupeidae	Clupeiformes	LC
Kechki	*Stolephorus indicus*	Engraulidae	Clupeiformes	LC
Chanda	*Chanda nama*	Ambassidae	Perciformes	LC
Bhetki	*Lates calcarifer*	Latidae	Perciformes	LC
Ayala	*Rastrelliger kanagurta*	Scombridae	Scombriformes	DD
Tuna	*Thunnus albacares*	Scombridae	Scombriformes	LC
Bamala	*Harpodon nehereus*	Harpodontidae	Aulopiformes	NT
Bami	*Mastacembelus armatus*	Mastacembelidae	Synbranchioformes	LC

LC= Least Concern; NE= Not Evaluated; NT= Near Threatened

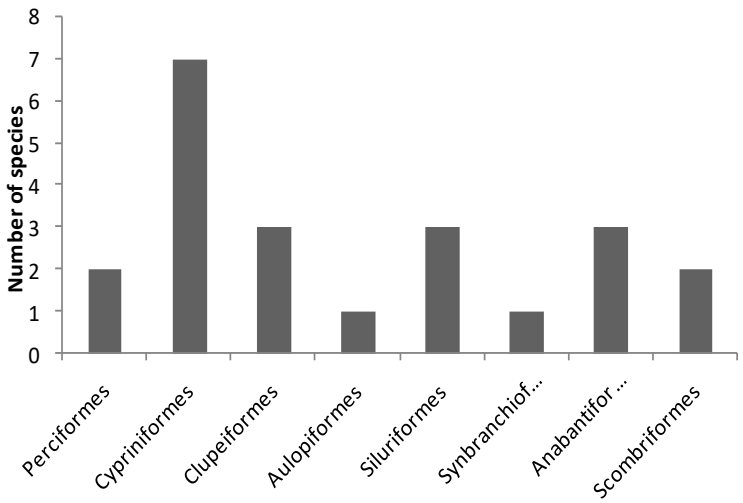

Fig. 2: Order-wise graphical representation of number of species recorded in the study.

bola) were recorded from family Cyprinidae. Other species recorded were Chela (*Salmostoma acinaces*) from family Danionidae, Bwtia (*Botia dario*) from family Botiidae and Bwtia (*Lepidocephalichthys guntea*) from family Cobitidae. Three species each were recorded from orders Clupeiformes, Siluriformes, and Anabantiformes. The species recorded in order

Clupeiformes were Chapila (*Gudusia chapra*), Ilish (*Tenualosa ilisha*) and Kechki (*Stolephorus indicus*). Species recorded in order Siluriformes included Tengwna (*Mystus tengara*), Rita (*Rita rita*) and Barli (*Wallago attu*). Other species recorded were Gwri (*Channa punctata*), Sol (*Channa marulius*) and Bengshi (*Trichogaster fasciata*) in order Anabantiformes. Two species were recorded from order Perciformes (Bhetki, *Lates calcarifer* and Chanda, *Chanda nama*). Two species were recorded in order Scombriformes (Tuna, *Thunnus albacores* and Ayala, *Rastrelliger kanagurta*). Single species was recorded from each orders Aulopiformes (Bamala, *Harpodon nehereus*) and Synbranchioformes (Bami, *Mastacembelus armatus*).

The IUCN conservation status of the fish species recorded in the study is given in (Table 1). Nineteen fish species (86.37%) identified as dry fish in the study were found to belong to the category of Least Concern. One species each were found in the Near Threatened (*Harpodon nehereus*), Vulnerable (*Wallago attu*) and Data Deficient (*Rastrelliger kanagurta*) categories.

Market price of dry fish:

The market price of the dry fishes in the five markets was found to vary on the basis of species, quality and consumer demand. The prices of dry fish in five selected markets are given in Table 2. It was observed that the market prices were generally reported to be higher in the rainy season (June to September) due to the higher cost of drying in this season. In the present study, it was observed that the market values of dry fishes varied from Rs. 200 /kg to Rs. 1000/kg depending upon species and quality. Among the available different dried fish which were locally produced, freshwater Bami (*Mastacembelus armatus*) was found higher priced (Rs. 850/kg) in Bishmuri Bazaar, Khankhila Bada Bazaar, Maldangpara Bazaar and Lahoti Bazar, whereas the price was Rs. 800/kg in Boro Bazaar. On the other hand, the price of the imported dry fish Bhol (*Raimas bola*) available in two markets, Boro Bazaar and Maldangpara Bazaar was found to be Rs. 950/kg, which was the highest. Generally, it was observed that the prices were comparatively higher in village markets than in the town markets. This may be because of the fact that the local fishers prepare dry fish from their own catch using traditional drying methods as they cannot afford modern costly methods and processes. It was also observed that the maximum quantity of imported dry fish products was found in the Boro bazaar which was located in the town area. This indicated that there was lesser demand for the imported dry fish product in local village markets, where a higher preference was observed for the locally produced traditional dry fish.

Imported dry fish species:

Among the different fish species observed in the survey, 11 species were found to be imported from outside Kokrajhar and were mainly marine or brackish water fishes (Table 2). These were viz. Bhetki (*Lates calcarifer*), Chapila (*Gudusia chapra*), Kechki (*Stolephorus indicus*), Bamala (*Harpodon nehereus*), Rita (*Rita rita*), Bhol (*Raiamas bola*), Barli (*Wallago attu*), Tuna (*Thunnus albacares*), Chela (*Salmo stomaacinaces*), Ilish (*Tenualosa ilisha*) and Ayala (*Rastrelliger kanagurta*). It was found that the commercial values of these dry fishes varied in the markets, and some of them were available in only two or three of all the markets surveyed. The prices of dry fishes were found to vary with the seasonal changes. The average market price of imported dry fish ranged from Rs. 300-950/kg. The study was carried out from the month of September, 2021 to March, 2022 which was off-season for drying. At this time period, prices were found to be generally higher as compared to other seasons.

Locally produced dry fishes:

Small indigenous fish species which have a low-fat content were found to be mainly preferred for making dry fish in the present study. The locally available preserved fishes were mainly freshwater species (Table 2). These were *Lepidocephalichthys guntea*, *Chanda nama*, *Mystus tengara*, *Esomus denrica*, *Botia dario*, *Trichogaster fasciata,*

Table 2: Market-wise list of the selling prices of the different dry fish species recorded in the study

Scientific Name	Source	Imported/Local	Bishmuri bazaar (Rs/kg)	Boro Bazaar (Rs/kg)	KhangkhilaBada Bazaar (Rs/kg)	Maldang para bazaar (Rs/kg)	Lahoti bazaar (Rs/kg)
Amblypharyngodon mola	Freshwater	Both	530	500	540	540	540
Botia dario	Freshwater	Local	300	250	300	280	250
Esomus danrica	Freshwater	Local	250	200	220	220	_
Lepidocephalichthys guntea	Freshwater	Local	300	250	300	280	250
Puntius sophore	Freshwater	Both	330	300	320	320	300
Raiamas bola	Freshwater	Imported	_	950	_	950	_
Salmostoma acinaces	Freshwater	Imported	_	400	_	400	_
Channa punctata	Freshwater	Local	320	300	320	320	300
Channa marulius	Freshwater	Local	320	300	320	320	300
Trichogaster fasciata	Freshwater	Local	600	560	600	580	600
Mystus tengara	Freshwater	Local	400	350	380	360	350
Rita rita	Marine	Imported	_	300	_	300	-
Wallago attu	Freshwater	Imported	_	380	_	_	_
Gudusia chapra	Freshwater	Imported	_	450	470	450	_
Tenualosa ilisha	Marine	Imported	_	550	_	_	_
Stolephorus indicus	Marine	Imported	_	350	380	350	_
Chanda nama	Freshwater	Local	500	450	500	500	500
Lates calcarifer	Marine	Imported	_	600	_	600	_
Rastrelliger kanagurta	Marine	Imported	_	350	_	350	_
Thunnus albacares	Marine	Imported	_	400	_	_	_
Harpodonnehereus	Marine	Imported	350	300	350	360	350
Mastacembelus armatus	Freshwater	Both	850	800	850	850	850

Channa punctata and *Channa marulius*. Moreover, three species of freshwater fishes namely *Amblypharyngodon mola*, *Mastacembelus armatus* and *Puntius sophore* were present both in locally produced as well as imported varieties. In the present study, the market value of locally produced preserved fishes ranged from Rs. 300-850/kg. The method of sun drying and smoking were most commonly reported to be used for preserving and preparing the local dry fish.

Process of production:

Locally, the dry fish were produced in the individual household of the fishers using traditional gears and methods. Generally, the women folks were engaged in the production of dry fish in the Bodo community. The production is usually small, and the dry products were sold in the local markets by the fishers themselves. Production and marketing of dry fish was found to be the main source of income for a majority of the respondents participating in the study. Some local retailers were also observed selling imported dry fish products in the village markets.

Socio-economic condition of dry fish retailers:

Results of the survey on the socio-economic conditions of the dry fish retailers are presented in Table 3. In the present study Bodo women community was found to be leading the role in dry fish preparation and its marketing. This was supported by the survey data as it was observed that 65.38% of all respondents involved in dry fish production and marketing were females as compared to 34.62% males. A majority (46. 15%) of the dry fish retailers belong to the age group 40-50 yrs while another 30.76% belong to the age group 30-40 yrs, and 23.07% were in the age group 50-60 yrs. The family size of the respondents ranged up to 10 individuals per family. Of all the respondents, 30.76% were engaged in dry fish marketing as an occupation, while 38.46% were engaged in in dry fish processing, production and marketing, and another 30.76% in dry fish production along with vegetable marketing. From the survey, it was recorded that 34.62% of retailers sold up to 5 kg of dried fish per day. Another 65.38% of respondents sold dry fish in the range 6 to 10 kg per day. It was observed that the income of dry fish retailers varies with the season. From the study it was revealed that 42.30% of retailers earned Rs. 3000 to Rs. 5000 per month and 57.69% of retailers earned between Rs. 6000 to Rs. 10000 per month.

Discussion

Among fish species recorded, the highest number of species (7) contributing 31.8% of the total recorded species was found in order Cypriniformes, whereas Anabantiformes, Clupeiformes and Siluriformes each accounted 13.6% with 3 species each. Scombriformes and Perciformes each covered 9.09%. Order Aulopiformes and Synbranchioformes having one species each contributed the lowest to the total number of species used for making dry fish. Present investigation in the study area revealed that the main sources of imported dry fishes were from Jagiroad, Nagaon, Assam and Alipurduar railway junction, West Bengal. Jagiroad dry fish market is known as the "Largest dry fish market in Asia" (Debnath *et al*., 2020). However, in some local markets, local dry fish were reported to be prepared by the local tribes (Boro, Rabha and Santhal) of the area. The fish for this production were reported to be procured from various water bodies in the area like the Gaurang River, Samoka River, Champabati River, local ponds, wetlands etc.

The present study revealed the important fish resource of the region used for the preparation of dry fish. The study recorded 22 species of dry fishes out of which 8 species were exclusively locally obtained and processed locally, 11 were imported and 3 species were common to both the sources. In the study by Ferousi *et al.* (2015),the same number (22) of dry fish species was recorded from the markets of traditionally dried fish in Rangpur division of Bangladesh. The findings of the present study agree with some earlier reports, where the rich diversity of fish was reported in the region (Baro *et al*., 2014;

Table 3: Demographic socio-financial record of all the respondents in the study

Parameters		No. of Respondent	Percentage (%)
Gender	Male	9	34.62
	Female	17	65.38
Age group	30-40	8	30.76
	40-50	12	46.15
	50-60	6	23.07
Level of Education	Class I-V	8	30.76
	Class VI-X	13	50.00
	Class XI-Graduation	5	19.24
Family Size	0 to 5	21	80.76
	6 to 10	5	19.23
Occupational Classification	Driy fish trading (Main Occupation)	8	30.76
	Dry fish processing, production and marketing	10	38.46
	Dry fish andVegetables marketing	8	30.76
Marital status	Married	20	76.92
	Unmarried	6	23.07
Quantity sold (Kg/Month)	Up to 5	9	34.61
	6 to 10	17	65.38
Income (Rs/Month) (vary with season)	3000 to 5000	11	42.30
	6000 to 10000	15	57.69
Retailer's year of experience	1 to 2 years	8	30.76
	2 to 3 years	12	46.15
	3 to 4 years	6	23.07

Chakraborty *et al*., 2016; Singha *et al*., 2017). Generally, the imported marine water fishes recorded in the study were processed by salting, air drying, sun drying, smoking and freezing. Similar process of dry fish preparation was reported in many studies from different regions of the country (Payra *et al*., 2016; Panda *et al*., 2022; Kalita *et al*., 2020) and abroad (Kallon *et al*., 2017; Paul *et al*., 2018; Kubra *et al*., 2020; Mehedi *et al*., 2020; Nahiduzzaman *et al*., 2020). Sun drying and smoking method are reported to be the most commonly practiced method (Madan *et al*., 2018). In the Bodo community, among the collected fish, small-size fishes having low market value were generally utilized for drying. The survey revealed that generally fish having low value or the small indigenous fish species were preferred for the production of dry fish as these are available in surplus, easy to handle, nutritious, and easily available with high consumer preference. Another reason for their preference is that some of the species like *Channa*, *Mystus*, magur and various small indigenous fish species are traditionally believed to have important health benefits and disease healing properties. It was observed that the price of dry fish greatly varied in different

markets based on species, size and quality of the product. Similar findings were reported by many authors (Feroushi *et al*., 2015; Pradhan *et al*., 2018; Mehedi *et al*., 2020) on the basis of the final dry fish product. For the preparation of dry fish, the fishes were cleaned and arranged in the tray/platform made of either thin iron wire mesh or bamboo slits or fibres. These were then dried or smoked over charcoal, coal or firewood heat until the moisture content of the fish becomes minimal. Sun drying method was also recorded mostly in case of small quantity of catch. The dried fish are generally stored in a closed airtight container or some other utensils which can be kept covered. Kalita *et al.* (2020) also reported a similar process of fish drying method practiced by different communities of Assam which was also reflected in the present study.

The present study showed that dry fish are abundantly available in the markets of Kokrajhar. The findings of the survey are in agreement with the study by Marine *et al.* (2014) and Kubra *et al*. (2020) where 26 and 17 dry fish species were reported from the Sylhet district and coastal region of Bangladesh, respectively. Another report by Payra *et al*. (2016) revealed the presence of 19 species on the West Bengal Coast. Plastic or jute bags were normally used for the storage of finished dry fish products. A similar case was reported by Monir *et al*. (2013) and Nahiduzzaman *et al*. (2020). Several retailers reported dry fish production and marketing as their primary source of livelihood in the study. Dry fish processing and selling have been reported as the main source of income in various reports earlier (Nath and Borah, 2013; Kashyap *et al*., 2013; Marine *et al*., 2014; Mitu *et al*., 2021). Throughout this study, it was observed that 69.24% of the participant retailers interviewed in the study were engaged in dry fish selling as the sole source of income. Notably, most of the locally prepared dry fishes were seen to be higher priced in markets as compared to the imported products. Variations in prices of the same species was observed in different markets. In the present survey, market prices for *Harpodon nehereus, Stolephorus indicus* and *Puntius sophore* were found to be Rs. 300-360, Rs. 350-380 and Rs. 300-330/kg, respectively. Whereas, Pradhan *et al*. (2018) reported the price of the same species viz. *Harpodon nehereus,Stolephorus indicus* and *Puntius sophore* as Rs. 600-700, Rs. 900-995 and Rs. 600-800 per kg, respectively in Nepal. Purkait *et al*. (2018) recorded the price of *Harpodon nehereus* and *Rastraliger kanagurta* to be Rs.194 and Rs.148 per kg, respectively in Digha coast situated in West Bengal. In the present study, price of *Rastraliger kanagurta* was observed as Rs.350 /kg which is relatively higher in comparison to the price recorded in West Bengal. Narzary *et al*. (2019) reported that the higher market demand and price for the locally prepared dry fish species such as *Channa punctata* and *Channa striatus* may be due to their traditionally believed medicinal properties.

The results of the present study are in agreement with Kashyap *et al*. (2013) on the study of five dry fish marketing channels of North East India. The present study showed that dry fish trading was the main occupation among 30.76% of all the respondents. Majority of all dry fish retailers engaged in the production and marketing of dry food fish species in all the markets surveyed were found to be women in the present study. This indicated their participation in income generation, and their desire for self-reliance and empowerment in the society. Brahmachary and Brahmachary (2018) also reported that the status of women was relatively better in the North East India as compared to other states. Women are reported to play an important role in the production, processing and marketing of dry fish globally (Rabbanee and Yasmin, 2011).Nath and Borah (2013) observed that dry fish retailing was an important source of income in rural areas.

The level of education of the retailers varied from primary to the degree level. 30.76% of respondents attained a primary level of education, 50.00% of respondents attained high school and

19.24% of respondents passed at least class XI to as high as graduation. Similar observations were reported in earlier studies by Molla *et al*. (2009) and Roy *et al*. (2017) from Sunderban and Bangladesh, respectively. Most of the retailers interviewed reported being satisfied with their position. The results were similar to the study reported by Flowra *et al*. (2012) and Kubra *et al*. (2020) on the socio-economic condition of the fishermen and other fish traders of Bangladesh. The domestic dry fish marketing in the study was seen as playing an important role but was highly unorganized and unregulated. Kumar *et al*. (2008) and Verma *et al*. (2015), reported the lack of infrastructure and inadequate storage facilities in fish marketing in India as the main factor reducing the supply and demand, and the revenue of the retailers.

Conclusion

The present investigation has established some important baseline data about the dry fish availability, diversity of species used for its preparation and its marketing in the local markets ofKokrajhar, Assam. A total of 22 fish species were found which were utilized for the preparation of dry fish, of which the Cyprinidae family was found as having the greatest number of species. There were 14 dry fish species that were mainly imported from outside Kokrajhar. These were mainly transported from Jagiroad in Nagaon district and Alipurduar railway junction, West Bengal. It was observed that the price was comparatively higher in village area markets than in the town area markets due to the higher transportation charges. Majority (65.38%) of individuals involved in dry fish production and marketing, were females indicating their active participation. The income of the retailers ranged from Rs. 3000 to 6000 per month. Dry fish occupies an important place in the markets of the study area and its production and marketing process have created employment for the local people. The findings of this study indicated that dry fish may play a crucial role in socio-economic upliftment, employment generation, and poverty alleviation, particularly among women. Sustainable dry fish business practices demand a healthy ecosystem and proper assessment so that it emerges as an employment-generating sector in the future.

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