

NOTE

Fat and Cholesterol Content of Some Fish and Shellfish of Bay of Bengal

MUSLEH UDDIN*, PARVEEN JAHAN† and MOIN UDDIN AHMAD‡
*Department of Food Science and Technology, Tokyo University of Fisheries
Konan, Minato, Tokyo-108 8477, Japan*

Twenty nine samples of fish and shellfishes from Bay of Bengal were analyzed to know their fat and cholesterol contents. Cholesterol and fat contents were significantly different among various families of fish and shellfish. Higher content of cholesterol was observed in shellfish than in fish. Moreover, fresh water fish contained lower amount of cholesterol than marine fish.

Dietary cholesterol is known to affect serum cholesterol¹. Therefore, it became even more important to maintain daily dietary intake of cholesterol specially those with cardiovascular problem. Recently nutrition labelling becoming obligatory in worldwide which makes it mandatory to label all processed products with their nutrient contents to enable to consumer for maintaining a balance food regime². Both fat and cholesterol are included as mandatory components. Since fish and other fishery products have become one of the major export items of Bangladesh, we should get information about both fat and cholesterol content of such exported fish of the Bay of Bengal. The information useful not only for local consumer, but also for world wide.

However, there is no adequate information about the cholesterol content of fishes and shellfishes harvest of the Bay of Bengal. Although some data about fat content are available but these are get variable. In this paper we summarized the fat and cholesterol content of some common fish and shellfish have of the Bay of Bengal. Species selection was made carefully to maintain the ratio of both red and white flesh fishes. Fish and shellfishes were obtained from Coxbazar Marine Fish Landing Centre and Meghna Fish Culture Limited, Coxbazar, Bangladesh between February and April 2000. Muscle (edible portion) from at least three species was minced together and 40 g of it used for analysis. The determination for each sample was replicated three times. Lipid content was determined by extracting a given quality of samples with petroleum ether in a Soxhlet apparatus for 16 to 18 h. Cholesterol content was determined by the

*Department of Aquatic Bioscience, Tokyo University of Fisheries, Konan, Minato, Tokyo-108-8477, Japan.

‡Department of Fisheries, Ministry of Fishery and Livestock, Coxbazar-4800, Bangladesh.

TABLE-I
FAT AND CHOLESTEROL CONTENT OF FISH AND SHELLFISH

Family	Species	Common name	Length (cm)	Weight (g)	Fat (% g)	Cholesterol (% mg)
Ariidae	<i>Arius jella</i>	Black fin sea cat fish	36	394	1.56	59.4
Belontiidae	<i>Xenentodon cancila</i>	Needle fish	23	107	0.91	53.6
Carangidae	<i>Megalaspis</i>	Torpedo scad	21	125	0.67	51.0
Carangidae	<i>Decapterus russelli</i>	Indian scad	19	53	1.40	69.0
Chanidae	<i>Chanos chanos</i>	Milk fish	27	294	1.00	34.0
Chichlidae	<i>Oreochromis mossambica</i>	Tilapia	17	75	0.52	42.3
Clupeidae	<i>Opisthoptertius tardoor</i>	Tardoor	15	41	5.11	69.5
Clupeidae	<i>Tenualosa ilisha</i>	Indian shad	40	927	5.28	91.6
Cynoglossidae	<i>Cynoglossus bengalensis</i>	Flat fish	19	43	0.23	42.0
Cyprinidae	<i>Labeo rohita</i>	Rohu	36	900	0.67	37.3
Cyprinidae	<i>Cirrhina mrigala</i>	Mrigal	37	891	0.61	36.1
Engraulidae	<i>Tryssa dusumeiri</i>	Thryssa	16	32	3.14	53.7
Lutjanidae	<i>Lutjanus gibbus</i>	Humpback snapper	32	859	7.92	96.6
Mugilidae	<i>Mugil corsula</i>	Mullet	16	81	3.31	61.3
Myliobatidae	<i>Myliobatis nieuhofii</i>	Eagle ray	29	1132	0.62	58.0
Polynemidae	<i>Polynemus indicus</i>	Thread fin	37	300	0.92	64.3
Percidae	<i>Lates calcarifar</i>	Sea bass	19	345	0.92	64.3

Family	Species	Common name	Length (cm)	Weight (g)	Fat (% g)	Cholesterol (% mg)
Scianidae	<i>Otolithus ruber</i>	Tiger toothed croaker	33	451	0.82	42.3
Scianidae	<i>Johnius argentatus</i>	Croaker	18	130	1.20	48.3
Scombridae	<i>Rastrelliger kanagurta</i>	Mackerel	27	259	7.21	58.4
Scombridae	<i>Cybium guttatum</i>	Spanish mackerel	34	790	5.10	57.7
Sparidae	<i>Argyrops spinifer</i>	King soldier bream	19	187	0.57	39.3
Sparidae	<i>Sparidae berda</i>	Silver bream	17	160	0.47	41.1
Stromateidae	<i>Pampus argenteus</i>	Silver pomfret	16	150	1.10	45.2
Stromateidae	<i>Stromiteus chinensis</i>	Chinese pomfret	17	157	1.30	50.1
Shellfish:						
Penaeidae	<i>Penaeus indicus</i>	Indian white shrimp	15	20	1.41	161.4
Penaeidae	<i>Penaeus monodon</i>	Tiger prawn	21	67	1.30	131.6
Penaeidae	<i>Metapenaeus monoceris</i>	Speckled shrimp	10	7	0.94	129.7
Loliginidae	<i>Loligo duvauceli</i>	Squid	14	48	1.43	200.2
Septidae	<i>Septia aculeate</i>	Cuttle fish	11	73	1.28	169.3

method of Rudel and Morris³. Cholesterol standard was procured from Wako Pure Chemical Industries Ltd., Japan.

Twenty-nine samples of fish and shellfishes comprising 20 families were analyzed in this study and results are shown in Table-1. The fat content was found 0.23 to 7.92 and 0.94 to 1.43% g in fish and shellfish respectively. Several researchers reported that the content of fat varies with size, season, sex, age, feeding etc.^{4,5} Unfortunately, we are not able to maintain all of them. However, fishes of some families including Clupeidae, Lutjanidae and Scombridae showed high content of fat. On the other hand, shellfishes contained small amount of fat content. In fish and shellfishes the cholesterol content ranged from 34.1 to 96.6 and 129.7 to 200.2% mg respectively which are closely related with the results obtained by Ackman⁶ in other fish and shellfishes. However, most of the fishes had a cholesterol content between 42 and 60 mg %. Shellfishes showed relatively higher cholesterol content than other fishes. Similar observations were also reported by Connor and Lin⁷. Among the families of fish analyzed, the cholesterol content differed significantly (data not shown). The cholesterol content of fresh water fishes was found to be low when compared to marine and brackish water fishes. However, some researchers pointed out that cholesterol could be varied due to the sexual variation and harvesting time of individual species⁸.

Some fish and shellfishes showed high values of fat and cholesterol contents indicating that those with heart problem should take care before eating such product. The consumption rate of fish and other fishery products is increasing rapidly; in this context, the above data could be helpful for consumer and food industries.

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