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CAVIAR, *ḵāvīar* in Persian, the processed non-fertilized roe of sturgeons (q.v.) and some other large fishes, highly valued as a gourmet delicacy. According to W. Eilers, the Persian name is the alteration or the variant of Pers. *ḵāya-dār*, lit. "having egg(s)," standing for *māhī-e ḵāya-dār*, lit. "egg-bearing fish" (i.e., sturgeon; cf. the current Persian name *māhī-e ḵāvīar*, applied to any kind of sturgeon), and then, by synecdoche, designating the eggs themselves.

In Iran the roe for caviar is obtained mainly from three species of sturgeon (family Acipenseridae) caught in the southern littoral or fluvial waters of the Caspian Sea:

1. *Huso huso* L., the beluga, called *fīl-māhī* (lit. "elephant fish"—an allusion to its stocky body and relatively small eyes), or, technically, *be/olūgā* (after its Russian name). Average roe yield of female belugas caught in Iranian waters: 17-20 kg. Beluga eggs (the size of chickpeas; Barīmānī, p. 209) are larger than those of the other sturgeons.

2. *Acipenser güldenstädti* Brandt. subsp. *persicus* Borodin, called *tās-māhī* or, technically, by its Russian name *osetr* (or its local variants). Average roe yield of this subspecies: 4-7 kg.

3. *A. stellatus* Pall., the stellate sturgeon, commonly called by its Turkish designation *ūzūn-būrūn* (lit. "long-nose[d]," in reference to its snout, which is more elongated than that of its congeners), sometimes *darākūl* (and variants), and, technically, *sevrū/ogā* (after its Russian name). Average roe yield: 1.5-2kg.

Ūzūn-būrūn eggs are the smallest.

Processing. Following is a short account of caviar processing, grading, etc., as practiced in Iranian fisheries on the Caspian (the information is chiefly from Keyvānfar's study).

The fresh sturgeon roe deteriorating rapidly, it must be processed as promptly as possible. The eggs' hardness, found only in freshly caught or killed sturgeons, makes for the higher quality of caviar. A 1347 Š./1968 study (Ḵosravī, pp. 1-26) about the fisheries in the southeastern part of the Caspian (from Faraḥābād to Gomīšān)—an area that yielded nearly half the caviar roe of the country—showed that the inadequacy of fishing and transport equipment, particularly lack of motorboats (for inspecting the nets in the open sea and hauling the catch, especially in stormy weather), caused undue delay in bringing the netted caviar fish to the processing stations in the area, with a consequent quality deterioration of the roe, which was therefore to be downgraded and used only for the much less valuable "pressed" caviar (see below). This devaluation occasioned considerable loss in the State's revenue from caviar trade.

Processing includes several steps. First the bulky ovary, carefully removed from the fish and cut into pieces, is rubbed gently by hand on a special sieve with a waxed cotton network to pass the eggs through it and to discard extraneous bits of tissue, fat, etc. The eggs, collected in a colander under the sieve, are poured into a special tinplated copper bowl, in which they are thoroughly washed with cold water to remove the blood clots or tiny bits of the ovary that may have passed through the sieve. *Ūzūn-būrūn* eggs are not washed, because the egg membranes are very tender. Then the eggs are left to be strained on a special screen (for 4-5 minutes in warm weather and up to 10 minutes in cold weather). The next step is the salting of the eggs, but these must be graded first.

Generally speaking, three grades are considered for any caviar roe—"excellent" (*ʿālī*), grade 1 (*raqam-e yak*), and grade 2 (*raqam-e do*)—depending on the relative size, color, hardness, taste, and the manner of processing. Large and medium-sized eggs are reserved for making the "excellent" and grade 1 caviars. As to color, four varieties are distinguished for beluga eggs: light gray (coded 000), gray (coded 00), dark (coded 0), and black (coded X); *tās-māhī* eggs are distinguished and labeled as A (light, light gray, light brown, or yellowish), and B (dark, grayish brown). No color

differentiation is made for *ūzūn–būrūn* eggs. The hardness and wholeness of the eggs are other grading criteria. The harder the eggs, the higher the quality. The roe tasting of silt or slime, even if it be otherwise of superior quality, will be rated grade 2. If the eggs are small, too soft (because of immaturity), or if about 50 percent of them are broken, they will be used for grade 2 caviar (see also “pressed” caviar below).

Salting is the most important step in the production of caviar. Different grades of eggs of different sturgeons are salted with different amounts of a mixture of pure salt, boric acid, and borax. Salting is meant to preserve the eggs and, especially, to bring out their flavor; boric acid and borax are added as bacteriostatic agents. The mixture of salt and the two antiseptics follows strict dosages (see the table in Keyvānfar, p. 107); for instance, for beluga eggs each kg of the mixture powder is composed of 87 g boric acid, 97.5 g borax, and 815.5 g pure salt. The proportion of this mixture to the quantity of the eggs from different fishes is also fixed; for example, 56 g of the mixture is added to one kg of beluga eggs (see the table ibid., p. 120). The compound is rubbed very gently and evenly by hand into the eggs. The final quality of the caviar depends largely on the time and manner of kneading the eggs with the compound (there are practical criteria to ascertain that the eggs have been properly treated). Then the eggs are spread on a special screen with a horsehair network to strain the excess salt liquid. Finally, the caviar is packed in special pressurized metallic boxes, which are labeled to indicate the provenience and grade of the contents, and dispatched to the central administration of the Iranian fisheries in Anzalī (former Bandar-e Pahlavī), where, after being checked, they are stored at -2° C. The amount of salting, however, may be varied according to the specifications of foreign importers. For instance, in the past when the U.S.A. was the principal client of the Iranian caviar, the salting was fixed at 100 g pure salt per kg of caviar. Boric acid and borax were excluded from the caviar destined for the U.S.A. Further, the caviar was to be packed in 50-liter oak kegs paraffined inside.

The procedure described above is for producing *ḵāvīar-e dān*, lit. “[whole-]grain caviar,” that is, the caviar the grains (eggs) of which are not compressed. There is another kind of caviar called *fešorda* “(com)pressed.” If about 70 percent of the eggs from a given fish are broken, or if they are milky and soft, they are to be processed differently. After the roe is first hardened somewhat in salt water at 38° C, it is salted and sterilized as above, and then poured into a special bag of *karbās* (a kind of cotton canvas) which will be

pressurized to squeeze out the thick milky liquid from the roe. Finally the pressed caviar is removed from the hag, and packed in 20, 30 or 50-liter kegs. Caviar weight loss due to compressing is about 24 percent. The *ješorda* caviar, if otherwise processed properly, will be graded 1 if uniform in color, and 2 if of mixed colors. (According to Barīmānī [p. 228], the *ješorda* caviar is made by salting in hot salt water [38°-40° C] the soft eggs unfit for *dān* caviar, and then by compressing the eggs with a press.) Pasteurizing the caviar, instead of sterilizing it with boric acid and borax, has come into use, too: The eggs, after being processed with 4-5 percent pure salt, are placed in hermetic glass jars and heated at 60° C (Barīmānī, loc. cit.).

Domestic consumption and foreign sale. Like other chondrosteans, sturgeons are scaleless fishes (their skin bears only bony bucklers). In the Shiʿite *feqh*, scaleless fishes and, a fortiori, their roe are considered *ḥarām* (illicit, unlawful); see, e.g., Moḥaqqeq Ḥellī (602-76/1205-77), III, pp. 217-18; Mūsawī Ḵomeynī, *Taḥrir al-wasīla* II, pp. 137-38, nos. 2 and 4; Ṭabāṭabāʾī Borūjerdī, p. 421, no. 2625. However, before the Islamic revolution of 1357 Š./1979 in Persia, caviar and fresh sturgeon meat were unrestrictedly available for sale in the country, but supposedly they were consumed by non-Muslims and non-conformist Muslims. The relatively low domestic consumption of the caviar was only due to its high price. For several years after the revolution, the religious legitimacy of the Persian fisheries' activity in connection with sturgeon and caviar remained uncertain, but finally in 1362 Š./1983 the lawfulness (*ḥellīyat*) of consuming sturgeon meat and caviar was sanctioned by a terse *fatwā* (religious pronouncement) of Ayatollah Mūsawī Ḵomeynī on the basis of the expertise of a group of clergymen and "reliable specialists" that "caviar fishes . . . have lozenge-shaped scales on parts of their body especially on the upper lobe of their tail fin" (see the reports in the newspaper *Keyhān*, no. 11959, 15 Šahrīvar 1362 Š./1983, where the text of the relevant *esteftāʾ* [asking for the formal opinion of a religious authority on a moot point] and the Ayatollah's response are reproduced in facsimile).

The increasing domestic consumption of caviar (probably as a consequence of this *fatwā*) is shown (in tons) in Table 12 (from *Sāl-nāma-ye āmārī-e 1365*, p. 452).

Caviar constitutes one of the main non-oil exports of Iran. The latest available export statistics (for 1367 Š./1988-89) indicates a total export of 264,310 kg with a total value of Rls 2,999,946,600. The largest purchases were by Switzerland (115,698 kg) the Soviet Union (63,880 kg), France (39,129 kg), Denmark (20,943

kg), and West Germany (15,229kg), and the lowest by Finland (6 kg), Argentina (5 kg), and Qatar (3 kg) (these data, still unpublished at the time of writing, were supplied to the author by The Customs Administration of the I. R. of Iran; the export statistics for 1366 Š./1987-88 are published in its *Sāl-nāma-ye āmār-e bāzargānī-e ḵārejī . . . 1366*, p. 509).

Roe of other fishes. The roe (Pers. *toḵm-e māhī*, lit. "fish egg," Gīlakī *ašba/ūl*) of various scaly, *ḥalāl* fishes, most especially that of the *māhī-safīd* (Pers.; in Gīlakī *sīfīd-māh/yī*, lit. "white fish"), *Rutilus frisii* subsp. *kutum*, is enjoyed very much in Gīlān. Owing to the escalating price (now exorbitant) of the *māhī-safīd* in the past fifteen years, the roe of some more abundant and less expensive *ḥalāl* fishes is consumed instead.

The roe is used either salted or unsalted. The traditional way of salting the roe of the *sīfīd-māyī* is to soak whole female roe-bearing fishes (in Gīlakī, *ašbalān-māyī*) for at least one year in a mixture of salt water and madder (*rūnās*) in special large clay jars buried in the ground and hermetically covered. A recent, less elaborate, procedure is to soak for at least twenty days in the same mixture the roes removed from the fishes. The salted roe (in Gīlakī, *šuv-ə ašbal*) is eaten as a relish with some dishes; being very nutritious, it was consumed especially by rural workers in Gīlān in their *qalye-nāhār* (a meal taken between breakfast and lunch) with cold *kata* (non-strained, unbuttered cooked rice), and onions (Faḵrāʾī, p. 114). It is also eaten in an *ʿaṣrāna* (late afternoon snack) called *ašbal-pəlā* (roe-pilau) consisting of salted roe, cold *kata*, walnut kernels, raw onion, and raw *bāqelā* (Maṛʿašī, p. 63). The unsalted roe is used in a couple of local dishes, especially *ašbal*(*-ə*) *kūkū* (roe omelet), which consists of a mixture of cleaned roe (preferably that of the *sīfīd-māyī*, finely chopped onions and parsley, beaten eggs, plus seasoning (salt, pepper, and turmeric), all fried like any other omelet (Pāyanda Langarūdī, pp. 342, 684, where the *tara*, a kind of leek, is also mentioned as one of the ingredients; full recipe in Ḵāvar, p. 126).

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