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ʿAṬR

ʿAṬR "perfume" (Arabic *ʿeṭr*, plur. *ʿoṭūr*; in Persian also *ʿaṭrīyāt*, perfumes), a Semitic term also attested in Syriac and Amharic. The word originally designated a perfume exhaled from a person or a plant or aromatic substances in general (synonym *ṭīb*). Ebn Ḵordāḏbeh (3rd/9th cent.) speaks about the land where *ʿoṭūr* grew and Ebrāhīm b. Wāṣef Šāh (5th/11th cent.) about the islands of *ṭīb* near Java (Ferrand, *Textesarabes*, pp. 28, 152). But *ʿaṭr* also designated various kinds of perfumes made by an *ʿaṭṭār*: maceration oils, enfleurage fats and oils, unguents, and distilled waters. After the discovery of essential oils in the beginning of the seventeenth century *ʿaṭr* was used for perfume made from essential oil only, or, more precisely, for the essential oil of roses, *ʿeṭr al-ward*, *gol-ʿaṭr*, English *otto*.

*ʿAṭr*s were compounded and obtained from scented substances, *Jawāher al-ṭīb al-mofrada*, taken from vegetal products (fruit-pulp, juice, rind—flowers, leaves, roots, woods, bark, seeds, resin, moss) as well as from animal products (ambergris, musk, civet, operculum of some gasteropods, castoreum, etc.). The most expensive substances were of course extensively counterfeited. They came in three principal forms, all three attested from old times: more or less thick unguents for rubbing, liquid oils of flowers for anointing, and distilled waters for sprinkling. There were four principal ways of extracting them: absorption or enfleurage (no heating), *naqʿ*; maceration (at medium or high temperature), *ṭabḵ*; fumigation, *tabḵīr*, *tadḵīn*; distillation *taqṭīr*, *taṣʿīdāt*.

Absorption and enfleurage. Most perfumes based upon oils (*dohn*, plur. *adhān*) were extracted by this process from fresh flowers. Absorption consisted in

soaking, without preheating, fresh petals of flowers (jasmine, rose, violet, sour orange, henna, stock, etc.) in the base oils—from sesame (*ḥall*, *semsem*), olive, sweet almonds, cotton seeds, apricot, and peach kernels, *ban*, *Moringa aptera* Gaertn. (which was excellent for its neutral odor and not going easily rancid), etc. The petals were changed every three or four days, five or six times in all; the oil was then filtered in a linen or silk material and placed in a well-closed glass bottle.

Enfleurage. In this process violets, roses, nenufar, narcissus, or Egyptian willow blossom (*bīdmešk*) were exposed to layers of sesame seeds, sweet almonds pulp, or *ban* seeds and changed several times. The seeds were then crushed and the extract was clarified by settling *reqqa* (Ebn al-Bayṭār, I, p. 107).

Maceration. By this process perfume oils were obtained from hard vegetal substances: spices (cloves, nutmeg, cardamom, saffron, etc.), wood shavings, sawdust (*nošārat*) from white, yellow, or red sandal wood, aloewood, etc., pulp of fruit, rind (lemon, citron, Syrian apple), seeds of rose or lemon, dry petals of rose, dry leaves of myrtle, mint, etc. Each of these substances was moistened (*ball*, *naddā*) and pulverized (*saḥq*, *deqqa*) in mortar (*hāvan*) or with a grinding stone (*ṣalāyat*). They were then thrown one by one into the oil and heated; alternatively they were all kneaded together and left for two or three days, then put in a cooking pot (*tenjār*, *tūr*). Sometimes rose-water was added, in which case the water had to evaporate by boiling at low heat; it was then taken off the fire and allowed to settle for one or two days, and finally filtered into well-closed flasks.

Fumigation. In the preparation of unguents, the base substance may be fumigated with aloewood, costus or *aḏfār* (operculum of some gasteropods).

Unguents. The principal unguents were *ʿabīr*, *ḡālīyat*, *ḵalūq*, Persian *malāb*, *moṯallaṯa*, and *sokk*. They contained more or less the same ingredients as the perfume oils, but were thick. The base substance, *rokn*, was a paste made from oak-gall, resin, wax, pudding starch, *našāstaj al-fālūḏaj* (al-Kendī, no. 25), pith of palm-tree root, bitter almonds, purified vegetal tar, *qeṭrān*, or litharge (*mordāsanj*), etc. The base substance was gently heated and the ingredients (powdered vegetal substances as above, perfumed oils, ambergris, musk, civet, etc.) were added one by one and gently cooked; if all the vegetal ingredients and oils were first kneaded together the resulting paste could be dried and pulverized before adding the base substance. Ambergris, musk, or civet were

in general added at the end of the process when they were introduced in powder form. The preparation was then taken off the heat and allowed to cool down somewhat before the mixing. The unguents were kept in glass bottles or flattened (*dalk*) into small disks and dried.

Distillation. The preparation methods described above appear to have been in use since antiquity. The process of distillation, which is far more complex, was known at least from the beginning of Islam, and may date back to the Greek Alexandrian alchemists, who knew the art from the Egyptians. Until the discovery of the essential oil, distilled "waters" were exclusively fabricated by this process. It involves two techniques: the dry technique, corresponding to the medieval *destillatio per descensum* (the cucurbit is in a cooking pot full of ash or is exposed to the fire directly), and the bain-marie (the boiler hangs in a cooking pot full of water) corresponding to the *destillatio per ascensum*. Jāber b. Ḥayyān from Kūfa (2nd/8th cent.), al-Kendī from Baṣra (ca.260/873), and especially al-Zahrāwī from Cordoba (ca. 404/1013) have left good descriptions of the various kinds of apparatus used. They, however, employed the bain-marie distillation (*taqṭīr be'l-roṭūbat*) for flower water and preferred charcoal fire to wood fire.

Yaʿqūb b. Esḥāq al-Kendī, a philosopher, mathematician, astronomer, and physician who lived at the court of Maʾmūn, in his book *Ketāb kīmīāʾ al-ʿeṭr wa'l- taṣʿīdāt*, shows the great variety of rich perfumes, and describes the distillation of many flowers: red rose, myrtle, jasmine, spikenard, willow blossom (giving the well-known *ʿaraq-e bīdmešk*), stock, and also lemon, Syrian apple peel, saffron, camphor, etc. Rose-water was added to intensify, enrich, and fix the fragrance, and was itself intensified with sandal, musk, etc. The distilled substances could also be impregnated before distillation, e.g., saffron with musk, in a kind of enfleurage.

Abu'l-Qāsem Ḵalaf b. ʿAbbās al-Zahrāwī, a physician and surgeon, in the twenty-eight section of his *Ketāb-al-taṣrīf le man ʿajeza ʿan al-taʾlīf*, chiefly describes various kinds of rose-water (*golāb*) distillation. The bain-marie method he describes was in use in Iraq (Ebn al-ʿAwwām, II, p. 380), but unlike al-Kendī he always treats rose petals without water in the cucurbit, which must have been a risky procedure.

There is little information about the distillation output. Ebn al-ʿAwwām quoting al-Zahrāwī says it was from one half to three quarter the weight of the roses in the waterless process (II, p. 390). For a better concentration the water

would be distilled two or three times.

The imperfection of the utensils certainly required careful adjustment in assembling the still, in order to get a low continuous fire and to guard the perfume from the smoke, but the effect of the smell of smoke could be helped some with amber, marjoram prepared with salt, or alum (Ebn al-ʿAwwām, II, p. 390). For a long time one had nothing but experience to guide one and so the correct adjustment of the equipment and the correct proportions in the mixtures remained a problem.

Though *golāb* "rose-water," by far the most popular perfume, was for a long time produced almost exclusively in Persia, the essential oil and its preparation were apparently discovered, more or less by chance, in Hindustan. The discovery took place in 1020-21/1611-12 at the court of the Mughal king Jahāngīr with its strong Persian influence, where the *ʿeṭr al-ward*, called *ʿeṭr-e jahāngīrī*, is first mentioned. The king himself in his memoirs relates how the discovery was made by the mother of Nūr Jahān Begum, his favorite Persian wife: "When she was making rose-water a scum formed on the surface of the dishes into which the hot rose-water was poured from the jugs. She collected this scum little by little . . . It is of such strength in perfume that if one drop be rubbed on the palm of the hand it scents a whole assembly and it appears as if many rose buds had bloomed at once" (*Tozok-e Jahāngīrī* I, pp. 270-71). In Europe, Arnold of Villeneuve (1235-1312) had isolated rosemary oil and used it in an alcoholic solution as a medicine (*Operaomnia*, pp. 589-90), but, curiously enough, though large quantities of rose-water were regularly distilled in Persia and Iraq at least from the ninth century, it was not known that *gol-ʿaṭr*, when cooled, like all essential oils floats upon the water in small quantities. Only during the seventeenth and eighteenth centuries was this knowledge extended to the entire Islamic world. European travelers in the seventeenth century noticed it and described it as a product unknown to them. Chardin speaks of a rose oil called *atre* which was very expensive, since from forty pounds of rose-water barely half a drachm of that oil was extracted. They left the rose-water for twenty-four hours in the open air in a large vat, and a brownish oil gathered on the surface of it and was removed with a straw (Chardin, II, p. 66).

See also anbar; gol; and ʿūd.

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