

**Gk. κόστος: A Fragrant Plant
And Its Eastern Origin**

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Abstract:

There is a plant name, approximating *costus*, in seven different languages: Greek, Latin, Arabic, Hebrew, Syriac, Armenian and Sanskrit. Yet it becomes apparent that this single word refers to three separate plants, *Saussurea costus*, *Costus speciosus*, and *Inula helenium*. We shall see that *Saussurea costus* is primarily an Indian plant, and has a black root; the *Costus speciosus*, primarily an Arabic plant, has a white, rhizome root; and *Inula helenium* is from Syria. This paper shows how in many instances one can tell which particular *costus* is being referred to by the ancient and medieval authors.

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Gk. κόστος is glossed by Liddell & Scott as 'a root used in a spice, *Saussurea lappa*' (hereinafter = *Saussurea*¹ *costus*); the term is widely used by the physicians Galen and Dioscorides, as well as other ancient scholars involved in botanical studies, from Theophrastus to the compiler of the *Geoponica*. According to Frisk's *Griechisches etymologisches Wörterbuch* (1960), the word is taken from Skt. *kūṣṭha-*, a plant of the same name. Frisk refers to Mayhofer's *Kurzgefaßtes etymologisches Wörterbuch des Altindischen* (1956) as his source for the etymology. Next, in R. L. Turner's

¹ For linguists the name Saussure is well known. The genus *Saussurea* is named for Horace Benedict de Saussure (1740-99), Swiss naturalist and philosopher, and his son Nicholas Theodor (1767-1845), botanist and chemist. Ferdinand was, I believe, a nephew of Nicholas.

A Comparative Dictionary of the Indo-Aryan Languages (1966), we find (#3370) the Sanskrit term glossed by *Costus speciosus*. Later, in Mayrhofer's *Etymologisches Wörterbuch des Altindoarischen* (1992), we find a dual gloss: "*Costus speciosus* = *Saussurea costus*." Yet this is impossible, since *Costus speciosus* is of the family *Zingiberaceae*, a group of plants related to ginger with a rhizome root, whereas *Saussurea costus* is of the family *Compositae* (now also called *Asteraceae*), known for its inflorescent blossom (among which are daisies and sunflowers), and also for its root.

Saussurea lappa is an alpine plant, growing in Kashmir above the 8000 foot level (Chopra 1956: 223, Dutt 1900: 180) with further extensions into mountainous South-East Asia. It does not grow in the Middle East and its modern Indo-Aryan cognates imply this is the original *kuṣṭha-*, for it is continued as Pali *kuttai-*, Prakrit *kuṭṭa-*, Hindi *kuṭ(h)*, Bengali *kuṭh*, etc. (Turner 1966 #3370). Its root releases a valuable oil² which is helpful in our identification of this plant name. The other costus, *C. speciosus*, is a common plant in the Middle East and is rather widely spread, growing also in India and Pakistan, especially in the east, in Bengal, and in the west, in the Konkan region of Maharashtra at altitudes below 4000 feet. Its root is rich in starch, and its flowers quite lovely; it is often grown as an ornamental (Chopra 1956:79). Though this plant name has been said to be related linguistically to Skt. *kuṣṭha-*, this relationship is belied by its modern Indo-Aryan appellatives, Bengali *keū*, Oriya *kaūkaūā*, Hindi *keūā*; Turner (1966 #3465) suggests that it is derived from Skt. *kēmuka-* which has been glossed as '*Costus speciosus*.' But it is these two plants which seem to be confused, and it appears, as I will show, that both these plants are described in ancient and medieval literature, but are frequently subsumed under the single name 'costus.'

The term *κόστος* is well substantiated in Greek. We find it in Theophrastus' *Historia plantarum* and also in his *De odoribus* (where we have the neuter form *κόστων*) and later in Galen, Dioscorides, the *Periplus*, and, later still, in the *Geoponica*. In other languages the term appears in a rather early Armenian text, in

² According to Chopra (1956:223), the root yields 0.6 to 2.8 % essential oils containing bicyclic lactone, helpful against asthma. Guenther 1952: 446-451 suggests slightly less. With distillation using super-heated steam, it will produce up to 4.8%.

Sanskrit Ayurvedic literature, prominently in the *Atharvaveda*, and abundantly among the Arab physicians, as well as in Syriac. Let us look first at the Greek evidence.

Theophrastus (*HP* 9.7.3) does not speak in any detail on costus, but rather mentions it in a list of more than a dozen plants used for perfumes (εἰς τὰ ἀρώματα χρῶνται) which includes κασία, κιννάμωμον, καρδάμωμον, νάρδος, ναῖρον, βάλσαμον, ἀσπάλαθος, στύραξ, ἴρις, νάρτη, κόστος . . .³ That it is an odorific is again made clear from its mention in the *De odoribus* where its pungency is compared with cinnamon (32): τὸ δὲ κιννάμωμον δριμύτητα . . . παραπλησίως δὲ καὶ τὸ κόστον. Theophrastus does not specify what part of the plant any of these aromatics might be which are mentioned in the *HP*, noting only that it is the roots, bark, branches, wood, seeds, gum or flowers of all these plants which provide the perfume.⁴

Dioscorides (I.16) notes that there are three types of costus: one from Arabia which is best, being white and light, having a sweet smell, (κόστου διαφέρει ὁ Ἀραβικός, λευκὸς ὢν καὶ κοῦφος, πλείστην ἔχων καὶ ἡδέϊαν τὴν ὄσμην); one from India, plump, black and light to the touch like the stalk of giant fennel (δευτερεῖ δὲ ὁ Ἰνδικός, ἄδρὸς ὢν καὶ μέλας καὶ κοῦφος ὡς νάρθηξ⁵); and one from Syria,⁶ which is heavy, having the appearance of the box-wood, overwhelming in odor (τρίτος δὲ ἐστὶν ὁ Συριακός, βαρὺς, τὴν χροῖαν πυξώδης, πληκτικὸς τῆ ὄσμη). He also notes that it has a warming effect (δύναμιν δὲ ἔχει θερμαντικὴν), and, while not stating specifically that it is the root that is used, leaves us little room to suspect otherwise. Importantly, Dioscorides goes on to mention that two ounces of costus, drunk, are helpful for those bitten by a snake (πινόμενος δὲ ἐχοεδήκτοις

3 ". . . cassia, cinnamon, cardamom, spikenard, *naïron*, balsam of Mecca, *aspálathos*, storax, iris, *nártē*, costus . . ."

4 Τούτων δὲ τὰ μὲν ρίζαι τὰ δὲ φλοιοὶ τὰ δὲ κλώνες τὰ δὲ ξύλα τὰ δὲ σπέρματα τὰ δὲ δάκρυα τὰ δὲ ἄνθη.

5 Here Lat. *ferula*. It has a hollow stem, the same in which Prometheus brought fire from the gods to the earth.

6 This particular Syrian species has long been identified as *Inula helenium*. It will be further discussed below.

βοηθεῖ οὐγγιῶν δυεῖν πληθός).⁷ In addition, a salve made with its oil is helpful to those shivering with a cold (σύγχρισμά τε ῥιγοῦσι μετ' ἐλαίου). This reference to oil again refers us to the India costus, rather than the root of *C. speciosus*, the Arabian costus, which is a rhizome.

Galen mentions only one costus, but in numerous places. In his book of *Simples* (Kühn XII 40), where we might expect some comment about the warmth of the costus plant, Galen offers some words that are helpful, noting certain medicinal qualities, and that it gives off an oil (μετ' ἐλαίου τὸ σῶμα . . .) which would be a characteristic of *Saussurea costus* but not *Costus speciosus*. Earlier in the *Simples* (Kühn XI 775), he lists the plants that are similar to costus, following to a great extent the comparisons made by Theophrastus mentioned above. The uses of costus in Galen's *Simples* would seem to illuminate the Indian *S. costus*, not *C. speciosus*. There are three further uneventful mentions of costus in his books on the composition of medicines according to *topoi*. In Book 9 (Kühn XIII 155), Galen says that it increases warmth and is an astringent (ὁ δὲ κόστος τῶν ἱκανῶς μὲν θερμαινόντων, μετρίως δὲ στυφόντων ἐστίν), a property that is derived from its juices (τοῖς γευομένοις αὐτοῦ). In Book 10 (Kühn XIII 229), Galen notes that it is harmful to those having a fever (βλάπτει μεγάλως τοὺς πυρέττοντας), being helpful rather to those shivering from a cold. Another use of costus compares its effectiveness with the flower of a type of rush, cassia, cinnamon, amomum, and costus (ἐστι σχοίνου ἄνθος καὶ κασσία, κιννάμωμόν τε καὶ ἄμωμον, καὶ κόστος). A final but uneventful use appears in the *Book of Substitutes* (Kühn XIX 733): ἀντὶ κόστου, ἀμμωνιακόν, κεριδες, ἑλένιον,⁸ all odorifics. Thus we learn something from the Greek physicians about the species of the plant: that it is harmful to those with a fever but helpful to those with a chill, that its root gives off an oil, and that perhaps its flower may be used; all refer to the Indian costus, *Saussurea costus*.

The *Periplus* notes that the plant is derived from India (Casson 1989: 74 = ¶ 39), and makes, of course, no mention that

⁷ This corresponds to a modern medical view, that *Costus speciosus* is useful for snake bites (Cupra 1956:79).

⁸ This would be a reference to the third costus, *Inula helenium*, about which more follows.

costus is also found in Arabia and Syria. It is available in the port of Barbarikon (κατὰ τὴν Βαρβαρικὴν [Π39.1]), which was located in the delta of the Indus.⁹ Farther to the east, at the port of Barygaza, costus is again exported, but here we read (48. 16-18) that this costus is brought down from upper areas (Κατάγεται δὲ δι' αὐτῆς καὶ ἀπὸ τῶν ἄνω τόπων). This tends to confirm that the Indian costus originates in the mountains, Kashmir being the principal source today. No mention is made of the color of the root.

The final Greek source I will cite is the *Geoponica*, an agricultural handbook of the tenth century, but derived largely from the lost fourth century text of Didymus of Alexandria (Γεωργικά, 4th C.), and of Cassianus Bassus Scholasticus (Περὶ γεωργίας ἐκλογαί, 6th C.), also lost, being superceded by the *Geoponica* (Greppin 1987). Here we read that the costus is raised from roots, both of which have a sweet smell: ὡσαύτως κόστος καὶ βάλαμος συτόρριζα Νοεμβρίῳ μηνὶ φυτεύονται, εὐώδη ὄντα πρὸς ὄσφρησιν (XI 27); its medicinal value is not noted —only its function as an odorific, and here we cannot distinguish between the Arabian or the Indian costus.

Latin also mentions costus and we find the form *costum* first in Pliny, who notes in his *Natural History* that, at least for the Indian plant, it is the root that he refers to, as well as the leaves. Radix et folium Indis in maximo pretio. radix costi gustu fervens, odore eximia (NH XII 41). Pliny goes on to contradict Dioscorides, saying that both the white and the black costus plants come from India, but agrees that the white is the better (in Patale insula, duo eius genera, nigrum et quod melius candicans). Later (NH XXII 118) he says that the costus loses its medicinal value, being brought from so far away, and is of value only as a perfume or as an unguent which is bought for the sake of religious superstition 'since we worship with incense and costus' (non p'acent remediis tam longe nascentia, non nobis gignuntur . . . odorum causa unguentorumque et deliciarum, si placet, etiam superstitionis gratia emantur, quoniam ture supplicamus et costo). It seems clear that Pliny did not have a clear understanding of some aspects of the use and origin of the costus.

The data from Sanskrit sheds some light, even though the Indian medicinal system differs from the Greek. The costus is first mentioned in the *Atharvaveda*, wherein we read that, at first, *kūṣṭha-*

⁹ Here see Brucker 1975:132.

might function quite the opposite of the Greek κόστος, for in the *Atharvaveda* (V 1 V) it is noted as a plant that is the 'banisher of fever' (*takmān*): *kuṣṭhehi takmanāśān takmānam nāśayannitah*. Yet it is likely (Zysk 1993:33-34) *kuṣṭha* banishes malaria, in which the infected person will have severe chills alternating with fevers; it is against these chills, if the Greek description is valid, that costus would be effective, and this brings the Ayurvedic use of costus into line with the Galenic.¹⁰ Skt. *takmān*, a somewhat indistinct term, might more appropriately be glossed as 'fever or chill.' Coming from the semantically vague root *tañc-* 'withering away, phthisis,' we are unable to diagnose from this verbal root a more precise gloss.¹¹ Karttunen (1997:155) adds that Horace (*Carm.* 3,1) considered it a Persian plant, but it is not clear how Horace got this into his head.

Other uses of Skt. *kūṣṭha-* are not as revealing. The term's sole appearance in the *Ramayana* (2.94.24 = 2.88.24) places the plant with other sweet-smelling or beautifully-flowered plants: "See the sumptuous bed of the lovers cushioned with the *kūṣṭha-* plant, the laurel, birch and the petals of the lotus."¹² There is a mention of the root in the *Suśruta Saṁhita* (II 35), an Ayurvedic lexicon of plants, where we read that in a cold water bath, after an exposure to heat, costus tends to aggravate the fundamental principle of *Vāyu* in a person. This would certainly make clear the problems that come at the junction of Greek and Indian medicine, two quite different systems.

¹⁰ This is reinforced in the *Aṣṭāṅga Hṛdayam* (XV.5) where we read that the plants "*bhadradāru* (Himalayan cedar, *Cedrus deodora*), *nata* (*Tabernaemontana coronaria*), costus . . . may mitigate *vāta*" (*bhadradāru*, *nata*, *kuṣṭha* . . . *vāyum* . . . *nāśāyet.*), and *vāta* (= *vāyum*) as we read in *Aṣ. H.* (I .5) has the capacity of *śīta* 'coldness.' Thus *kuṣṭha* overcomes cold. See also S. K. Jain and Robert A. Filippis 1991: 171, 612; and R. S. Thakur 1989: 461-462.

¹¹ Böhtlingk and Roth say only that it is "eine best. Krankheit oder wahrscheinlich eine ganze Klasse von hitzigen Krankheiten, welche von Hautausschlängen begleitet sind." Again, calling it 'hitzigen' might be too limiting if malaria can be involved.

¹² *Kuṣṭhampunāgasthagarabhūrjapatrottaracchadān / kāmīnām svāstarān paśya kuśeśayadalāyutān*. This is surely a reference to the flower of the family *Compositae*.

Armenian material is somewhat helpful, and exists from an entry in the *Galen Dictionary*,¹³ which I have found only in a single manuscript of the *Barġ' Gatianosı*, held in the library of the University of Pavia (Italy), MS 178¹⁴. There we have the entry կրստնս մղկուշտ *kostos - molkušt*,¹⁵ which is, of course, Gk. κόστος followed by what appears to be a corruption of the Arabized root for the root or rhizome, *armūlah*,¹⁶ with the Arabic term قسط *qust*,¹⁷ hence 'rhizome-root of the *costus*.' The use of rhizome specifically points to the *Costus speciosus*, of the family *Zingiberaceae*, which has a starchy, rhizome root, rather than to the *Saussurea costus*, of the family *Compositae*, which does not. Another mention appears in the *Care of Fevers*, by the twelfth century Armenian physician Mkhitar of Her (1832: 145-146) who uses an unstated amount of 'sharp costus' (լեղի խոտս *leti xusi*), along with other herbs, to make a lozenge useful against diseases of the liver and the area of the spleen, to heal an inflamed opening of the stomach and liver following a prolonged fever, and various types of

¹³ The Galen dictionary, the *Barġ' Gatianosı*, is attributed to the sixth or seventh century, during the so-called Armenian Hellenizing period. To that Greek-Armenian pharmaceutical dictionary were added a good number of Arabic-Armenian glosses, but it seems impossible to date those additions. Here see Greppin 1985:7-13.

¹⁴ I wish to thank Dr. Virgil Strohmeier of the American University of Armenia, who brought this manuscript to my attention.

¹⁵ The manuscript is horribly corrupt, both for the Greek and the Armenian words (both written in Armenian script); there are gross misspelling and some entries cannot be deciphered.

¹⁶ Lane 1863:1160.3.

¹⁷ The Arabic letter ق *q* would normally be transliterated as Arm. /l/, a voiced velar fricative, but in the Classical period, which preceded the time of Arabic power, the Armenian /l/ was still a dark (velar) /l/, and used in loanwords, to reflect Gk. *lambda*, for instance; in non-initial position it was used to reflect Syriac

dropsy.¹⁸ However, it is impossible to understand what the specific effect of the costus itself is in this preparation.

Later, the fifteenth century physician Amirdovlat, in his *Useless for the Ignorant*,¹⁹ comments, spelling the plant name with the Middle Armenian phonetic equivalent of Arabic قسط *qust*, Arm. դուստ *tust*. He lists three types, which correspond exactly to the description of origins by Dioscorides above:²⁰ the simple *tust*, which is the Arabian costus, *Costus speciosus* (Vardanian 1990 #1538); next the դուստի շամի *tusti šami* which is the Syrian costus, *Inula helenium*²¹ (Vardanian 1990 #1539); and finally դուստի հնտի *tusti hnti*, which is '*Saussurea costus*, Indian costus' (Vardanian 1990 #1540). Amirdovlat (Basmadjian 1926 #1826) says it is "a thick root

lāmadh; in Persian it reflected intervocalic //l/. Hence, we would expect an early Armenian loan-form to begin with a *k*-, rather than a *t*- (MArm. =gh). This however, does not explain the Arm. Ճ, which, otherwise, exists only in Syriac and Sanskrit.

¹⁸ Լոքին դուրսն, որ օգտէ լերդին, եւ կալուածոցն, եւ փայծղան, եւ յայտոցէն՝ որ լինի 'ի ստամոքքերանն, եւ 'ի լերդն, 'ի հին տաքութեանէ, 'ի յարծուեցն՝ որ կոչի մսի արծուիք, եւ յորդէջրհեղն:

¹⁹ Ամիրդովլաթի Ամասիացոյ, Անգիտաց անպէտ. Basmadjian 1926: #1826.

²⁰ Amirdovlat also agrees with Dioscorides and Pliny, that the white is the best: եւ լան է որ սպիտակ լինի եւ ի լի.

²¹ This is the third type of costus mentioned above in Dioscorides, and it comes from Syria. The flowering plant is also of the *Compositae* family and has the same inflorescent blossom. It is thus allied to the India costus, and not the Arabic costus. It is the least useful costus, medicinally. In the *Dioscurides triumphans* (Dietrich 1988:99), Commentator 'A says that "the ripe *Inula helenium* burns the tongue and

and pleasant smelling, sweet and sharp."²² Amirdovlat is even more specific, and notes that the (root of the) Arabian costus is 'sweet,' and further noted, perhaps with a reflex of Pliny's confused statements in mind: "Some say that the Indian costus is black and sweet, and the 'maritime' costus is white; this is not so, the truth is that the black (Indian) costus is sharp, and the white (Arabian) is sweet."²³ He further adds that the Arabian costus is dry and warm in the third degree (υπαρ τι ζηρ ε φ υπαρωδωω), a state which corresponds to the observation of Dioscorides who noted also that it has a warming effect: δύναμιν δὲ ἔχει θερμαντικὴν (I.16.4), and agrees with the statement by Galen above that it increases warmth, is sweet, and is harmful to those having a fever.

These comments about the warming effect reflect what is known from the Arab physicians, and which is quoted by Ibn al-Bayṭār in his *Treatise on Simples*²⁴ (1990 #1785). There Ibn al-Bayṭār repeats Ishāq ibn 'Amrān, saying that there are two sorts (of costus): a white costus, which is also called بحري *bahrī* 'marine' and another, called 'Indian' which is thick, black, light and sharp. Both are hot and dry to the third degree; the Indian is the more warm.²⁵

In the usually very accurate lexicon of pharmaceutical terms,

has an overwhelmingly powerful aroma" اما الراسب لأطین فيحذى اللسان وراميته قوية .

²² Ղուստ. ինքն թանծր տակ է եւ անուշափոտ քաղցր եւ լեղի.

²³ Իպն սսէ թէ ղուստի ճնտին սեւ եւ քաղցր լինի. եւ ղուստի պահրին՝ սպիտակ եւ լեղի լինի. եւ չէ ստուգ. եւ ստուգ այն է՝ որ սեւ ղուստն լեղի, եւ սպիտակ ղուստն քաղցր է՝ ճնտի է.

²⁴ This text is a most valuable compilation, by Ibn al-Baytar, of 2324 plant names, as recorded by various prominent physicians, Greek and Arabic, who preceded him. In it, Ibn al-Baytar records what Dioscorides, Galen, Aristotle, al-Tabari, al-Israeli, Avicenna, Ibn Zohr, Rhazes, Ibn Massa, and many others, had to say about the healing power of the various plants.

²⁵ القسط ضربان أحدهما الأبيض المسمى البحري والآخر الهندي وهو غليظ أسود خفيف مر المذاق وهما خاران يابسان في الدرجة الثالثة والهندي اشد حرا في الجزء الثالث.

شرح اسماء العقار (the *Šarḥ 'asmā' al-'uqqār*) of Maimonides, Arab *qusṭ* is glossed by *bustaĵ*, a Persian word, itself usually identified as 'incense' (Meyerhof 1940:169, #338: قسط هو البستج); Meyerhof, reporting on what is available in the pharmaceutical market in pre-war Cairo, continues the idea that the Indian and the Arabian plants are subspecific to each other: "Le *Costus indien* et 'arabique' sont donc le même drogue." He acknowledges that the Syrian costus is separate, however, *Inula helenium* L., but describes the *qusṭ hindi* as a white or grey root, which is contrary to Dioscorides' reporting, who called the India costus black, as does al-Biruni, who, in his *Book on Pharmacy* (كتاب الصيدنة), says the colors are the same as those given by Dioscorides, who is quoted. Al-Biruni also says that the 'marine' root is white,²⁶ and that it is also known in the forms *kust* and *kust* كسط (Said 1973: 269:307-308 [Arab]).

There are a few appearances in Syriac literature, in the Syriac *Geoponica* (87.8) as *qustūs* قسطوس, and in the Syriac translation of Galen's *Simples* where Merx (1885:278:44) notes two spellings, *qūstūs* قوستوس and *quštā* قشتا. It appears in the *Syriac Book of Medicines* as *qūštā* قشتا (Budge 1913:I.66.xxii = 1913:II.72.11), where it is said that it is a "medicine good for catarrh of the nostrils, when mixed equally with black cumin (*Nigella sativa*)."

قسطوس يسعج لحمه قسطوس : قسطوس محملا معا . قسطوس قسطوس
 قسطوس قسطوس قسطوس

This ties in well with the aroma of the burnt root, whose fumes, especially of the Indian costus, are used to relieve the sinuses, and are helpful in bronchial asthma (Chopra 1958:223).

The term also appears in Hebrew in an uneventful passage from the *Mishna*.²⁷ Similarly, in the Moroccan *Tuḥfat al-aḥbāb*

²⁶ بحري حلو ابيض.

²⁷ The term appears in the *Mishna* along with a list of spices (*Uktsin* 3.5): "Costus and the ginger-plant, and principal spices, the root of crowroot, and asafoetida and pepper, and lozenges of wild saffron may be bought with tithe money:"

Reenaud and Colin 1934 #350) we read again that the white costus is the best.²⁸ Al-Samarqandi mentions a costus balm, made with a variety of ingredients (Levey 1967:135), but does not comment on the plant in particular. Surprisingly, costus is not mentioned in al-Dinawari's monumental study of plants (كتاب النبات, Hamidullah 1973).

The entry by Avicenna is elaborate, and his identification reads "Costus is of three types, one of them (the Arabian) is white, light in weight, aromatic; the second, Indian, is black, also light in weight, and sharp. There is also a type (of costus) with heavy smell like the odor of cloves. From these types, the worst has a smell like the smell of aloes; the flower is blackish The best costus is white, fresh, firm, without defect and not badly smelling, which does not sting the tongue. Next to it is the Indian —black, light in weight, and then the black Syrian variety; the best variety of them is the marine costus, with a slender root."²⁹ Here we have an identification that corresponds to the other Greek and Arabic physicians, and adds further information.

We have seen that there are surely three principal types of costus but we can distinguish between the two most important, Indian costus (*Saussurea costus*) and the Arabian costus (*Costus speciosus*), only occasionally since we must have a reference to at least one of these diagnostic features: the oil of the plant, its value to asthmatics, the color of its root —white or black, or to its sweetness, in order to make a distinction. Lacking these references, we cannot state, in some instances, whether the plant specified in the ancient or medieval text is the Indian or the Arabian costus. But that there are two separate and important species of plant involved is

הקושט והחמס וראשי בשמים, התיאה והחלחית והפלפלין, והלוט חריע, נלקחים בכסף מעשר;

28. اجودة الابيض الحلو.

29. أصدافه ثلاثة : احدها عربي، و هو ابيض، خفيف عطر، و الثاني هندي، أسود، خفيف، و الثالث و هو المر و هذا المر صدف . . . ثقيل الراحة، يسمى القر تفلی. و من هذه الاصداف الدون ما راحة الصبر، و هو إلى السواد. أجوده الابيض، الحديث امتملى، غير المتأكل، و لا زهم يلدع، و يحذى اللسان، ثم الهندي الاسود الخفيف، و الاسود الشامي، جوده البحري، الرقيق القشر.

It is not clear to me how بحرين 'marine' is used.

clear. The third type, the Syrian costus, *Inula helenium*, seems to be little used.

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