CHAPTER 12

UMBELLIFER FRUITS (*Trachyspermum copticum* [L.] Link) FROM THE WORKMEN'S VILLAGE

by

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12.1 Introduction

Two small linen bags, dating from about 1350 BC, from the Workmen's Village at el-Amarna, contained some desiccated plant remains. One is no. 4532 in the textile register, and comes from unit [1470] in square Q14, a deposit of organic rubbish which formed the ground surface on which animal pens 400 were built (for the location see *AR* I: 41, Figure 4.1; this deposit was excavated in 1985). The bag enclosed a tiny sprig of *Tamarix*, about 4.8 mm long. Since fragments of *Tamarix* are ubiquitous in plant samples from the Workmens's Village, and the plant is a common constituent of the local desert flora, its presence here is probably not significant.

Bag 5045 in the textile register was found in unit [2123], a deposit of rubble in the south part of the Front Room of House West Street 2/3. This deposit is a mixture of roofing fragments and brick rubble. Since it had been disturbed by modern robbers, it cannot clearly be derived from a specific location in the house (*AR* IV: 6–8). Inside the tightly bound bag, interspersed with a few shreds of chaff (most probably of barley), were four whole fruits and five individual mericarps of an umbelliferous plant. The umbellifers are the carrot family, which includes herbs and spices such as dill, fennel, anise, and caraway.

This chapter describes the fruits, discusses their identity, setting forth the case for *Trachyspermum copticum* (L.) Link; and deals briefly with the nomenclature, use, and ancient Egyptian evidence for this species, before discussing its significance at Amarna.

12.2 Description of the fruits

In order to describe the fruits, it is necessary to use technical botanical terms. Figure 12.2 is a labelled sketch of the fruit, which also indicates how measurements have been taken. Four of the fruits are indehiscent, that is, the two sections or mericarps making up the fruit are still attached. Five other mericarps have separated and are more bowed when seen in lateral view. The stylopodium is conical, but the styles themselves have not been preserved. Some, but not all, of the mericarps have protrusions below the stylopodium at the apex of the longitudinal ridges. These ridges are unwinged, rounded, not overly prominent, but distinct. In lateral view (Figure 12.1a), the overall shape of the entire fruit is a somewhat elongated ovoid. Scattered over the ridges, and in between them on the vallaculae, are small nodules or tubercules. These are often difficult to see, especially on exposed surfaces, but are obvious in the more protected curves near the commissure (the line of junction between the mericarps), particularly on whole fruits and immediately adjacent the longitudinal ridges. The smallest whole fruit is so covered in these tubercules that it has a fuzzy appearance.

Table 12.2 (on p. [377]) sets forth minimum, average, and maximum measurements, and ratios. Because of possible distortion after separation of mericarps, whole and split fruit have been averaged separately, but an overall average is also presented for length (L) and thickness (T). Breadth (B) measurements between whole and split fruit are not comparable. The measurement has been made across the two joined mericarps for whole fruit in order to compare with other published data; for split fruit the breadth of the single mericarp has been taken. Thus, an overall average for breadth (and corresponding indices) cannot be calculated. The original total breadth of a whole fruit is not necessarily twice the breadth of a single mericarp, since some distortion by bowing seems to occur when the two mericarps separate. The L/B ratio can be considered an index of slenderness in lateral view, and B/T indicates the degree of lateral compression.

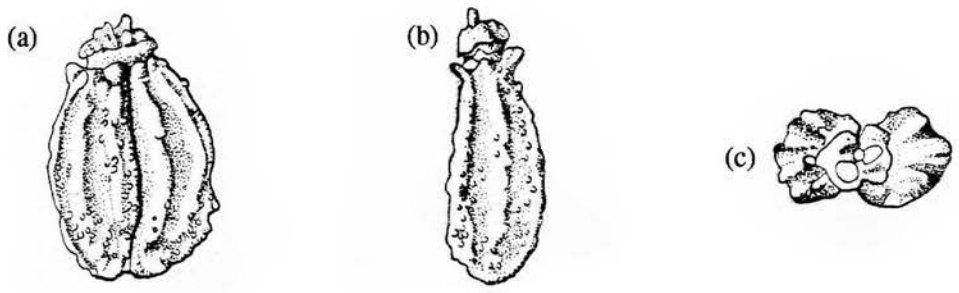

Figure 12.1. Ancient fruit seen in lateral view (a), dorsal view (b), and transverse view (c). Scale approximately x 20.

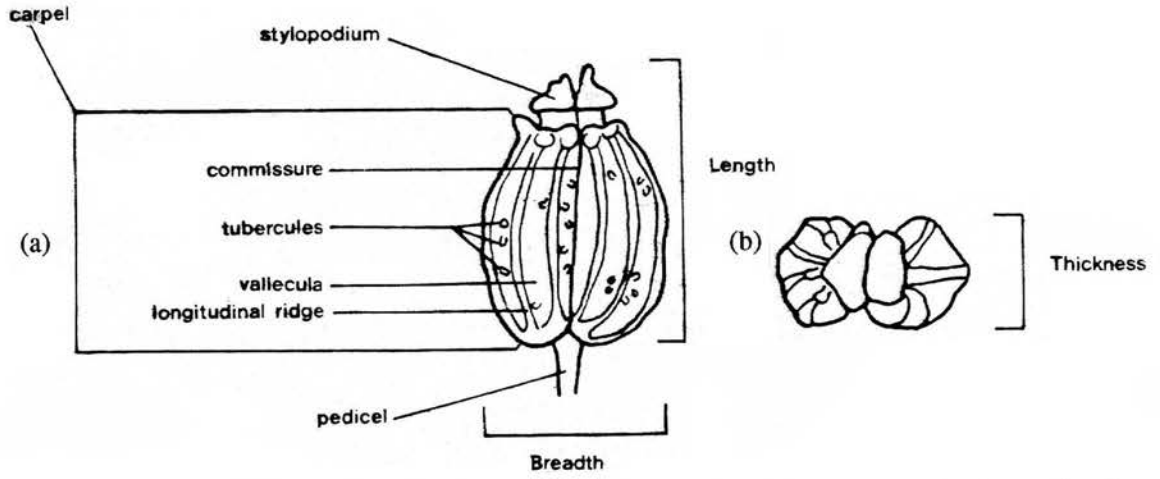

Figure 12.2. Diagram of ancient umbellifer fruit in lateral (a) and transverse (b) views, showing its features and how the measurements have been made.

Because the sample size is so small, these ratios can only give a general impression of fruit characteristics. They indicate that the fruits are more or less twice as long as broad, and twice or slightly more as broad as thick: that is, they are fairly elongate ovoid and somewhat laterally compressed. According to Drude's (1897/98) classification of the family, the fruits belong to subfamily Apioideae of the tribe Ammineae, within subtribe Carinae.

12.3 Identification

Lacking a complete reference collection of cultivated and wild Egyptian umbellifers, I consulted two books as starting-points for possible candidates. Germer (1985) gives descriptions of various umbellifers, with records from ancient Egypt; Darby, *et al.* (1977) cover some umbellifers which may have occurred in ancient Egypt. Most are members of the same subtribe (Carinae) as the genus *Trachyspermum*. The most important characteristics for the identification of these fruits as *Trachyspermum copticum* (L.) Link are: their overall shape, their small size (less than 2 mm long), the unwinged, non-prominent but distinct longitudinal ridges, and, particularly, short tubercules scattered over the fruit surfaces.

Of the umbellifers which Germer (1985) and Darby, *et al.* (1977) discuss, nearly all can be confidently rejected for more than one reason. Table 12.4 (on p. [379]) lays out these species and the features which exclude them from consideration and shows how *T. copticum* (L.) Link corresponds in all respects to the ancient find from Amarna. Only *Apium graveolens* (celery) has a fruit with a similar shape which falls into the same size range. However, the fruit is smooth, with no trace of tubercules, and it is too broad in relation to length. *Petroselinum crispum*

(parsley) is slightly too long, and is, in any case, smooth. Of these umbellifers, only *Trachyspermum copticum, Pimpinella anisum* (anise) and *Cuminum cyminum* (cumin) are not smooth. *P. anisum* fruits are at least twice as large as those of the ancient material, and have distinct hairs, not tubercules. *C. cyminum* bristles are long and very slender. *C. cyminum* fruit is longer, and narrower in relation to length than the ancient fruit, and can also be eliminated because of its narrow elongate stylopodium and the very narrow lower end of the fruit, where it attaches to the pedicel.

Nearly all the other cultivated umbelliferous spices and herbs listed in Zeven and de Wet (1982) from the Near East, Mediterranean, and African regions, can be eliminated as possibilities on the basis of their descriptions in various floras, and by personal observation of some. Most are far too big. Even if the ancient fruits had shrunk by fifty per cent in all dimensions, the size of most of these possible umbellifers falls well outside their range. Other characteristics, such as winged longitudinal ridges and dissimilar shape, also eliminate these species from consideration.

Identification has been confirmed by comparison to modern reference material from several sources. I have examined fruit from a plant collected in Iran (Persia) from the Royal Botanic Gardens, Kew (specimen: Gilliat Smith 2104). Dr Mordechai Kislev of Bar-Ilan University, Israel, kindly loaned fruits of *Trachyspermum copticum* from his reference collection. Dr. Asuman Baytop of the Pharmacy Faculty, University of Istanbul, generously provided a sample grown near Urfa, Turkey, which she collected from a herbalist's shop in Gaziantep. Fruits of *T. copticum* purchased from several herbalist shops in Cairo also correspond to the ancient find, and incidentally attest to its continued use in Egypt.

The only species known to be cultivated in or near Egypt whose description fits the appearance of the ancient find is *Trachyspermum copticum* (L.) Link.

12.4 Modern nomenclature of *Trachyspermum copticum* (L.) Link

This plant has been assigned a proliferation of scientific names, mainly because the genus has not been clearly defined (Hedge and Lamond 1987b: 336). It seems worthwhile to list some of the synonyms in use, with their references, so that the species can be recognized where different nomenclature has been favoured.

Most floras use either *Trachyspermum ammi* (L.) Sprague ex Turrill, or *T. copticum* (L.) Link. I have chosen to follow Rechinger's (1987) recent publication *Flora Iranica*, where the section *Umbelliferae* (Hedge and Lamond 1987b), lists it as *Trachyspermum copticum* (L.) Link. The name is appropriate for a find from Egypt. (From now on in this chapter, the authority [i.e. (L.) Link] will usually be dropped from the name). Table 12.1 gives some indication of the variety of scientific names applied to this species.

Table 12.3 (on pp. [377–8]) sets out common names from different languages. For names in many Indian languages, see Manjunath (1976: 267) which includes "ajowan", the common name used here. Use of common names is even more hazardous than attempting to locate the most suitable scientific name. Since *T. copticum* is a rare plant in Europe, its European names are perhaps borrowed from other, better known plants. Some names, particularly the Arabic and Turkish, may be archaic. Inquiries of mine at several spice shops in Istanbul and Ankara failed to procure any recognition of the listed Turkish names. The first two are probably Ottoman terms and thus unknown today because, as this is a very rare plant in Turkey (Baytop 1986), few people there may know its name.

12.5 Description of the plant

The description here is taken from Tutin (1980: 134) and Zohary (1972: 417), except where noted otherwise. Clear illustrations of the plant and fruit can be found in both publications. Jansen (1981: 115, Figure 12) has an excellent drawing. A reproduction from Tutin (1980) is given in Figure 12.3 by kind permission of the Botanical Society of the British Isles.

Trachyspermum copticum is an annual. Many-branched but short, it varies in height from 10 cm to 30–60 cm (Post 1932: 525; Reidl 1964: 462), rarely up to 90 cm. The leaves are finely divided; each lobe is between 1 and 2.5 cm long. The white flowers are composed of petals about 1 mm long; the umbels, or groups of flowers, span about a centimetre.

Name	Source
Ammi copticum L.	1, 3
Ammi copticum Boiss.	2
Ammios muricata Moench	4
Bunium aromaticum L.	1
Bunium copticum Spreng.	2
Carum copticum (L.) C.B. Clarke	1
Carum copticum Benth. and Hook.	2
Daucus copticus Pers.	3
Deverra korolkowii Rgl. and Schmal.	4
Linguisticum ajawain Roxb.	2
Ptychotis adjowan DC.	2
Ptychotis coptica DC.	1
Selinum copticum (L.) Krause	4
Sison ammi L.	1
Sison ammi Jaq.	2
Trachyspermum ammi (L.) Sprague ex Turrill	1

Source references

1. Hedge and Lamond (1987b: 337)
2. Bedevian (1936: 149)
3. Boisser (1872: 892)
4. Jansen (1981: 111–12)

Table 12.1. Some scientific names for *Trachyspermum copticum* (L.) Link.

12.6 Habitat and distribution

Although found in the Near East, *T. copticum* is an uncommon plant there. Zohary (1972: 417) notes that it is very rare in the Palestinian region and known only as a cultivated plant. It is found on stony ground in the Judaean mountains. Post (1932: 525) records it in fields in the Jordan valley, but makes no comment on its frequency, nor whether it is a weed or cultivated. Hedge and Lamond (1987a: 530; 1987b: 338) state that it is not native in the *Flora Iranica* area (i.e. north Iraq, Iran, Afghanistan, and highland Pakistan). It is found only in cultivation or as an escape in Iran, Afghanistan, and Pakistan; it also grows in Ethiopia, Egypt, and India. Boissier (1872: 892) records it as cultivated in Egypt, Mesopotamia, Iran, and Afghanistan. It is cultivated and used on a local scale in Turkey, available only in Urfa and Gaziantep (Baytop 1986: 54). In no Eastern Mediterranean region is it known to be a truly naturalized wild plant. Clearly an introduction in England, it is found very occasionally on rubbish dumps only (Tutin 1980: 134).

Usher (1974: 126) and Zeven and de Wet (1982: 79) name India as the species' place of origin. According to Manjunath (1976: 267), although it is cultivated throughout India, its place of origin is said to be Egypt. However, Täckholm and Drar (1956: 200) state that *Ammi copticum* L. (as they call it) was found only once as an occasional introduction and is not native to Egypt.

12.7 Cultivation

India is where most *T. copticum* is raised. It is grown mainly on the plains but does well at higher altitudes, under a wide range of agricultural conditions. Watt (1908) says that it is sown in October to November on ridges in the fields, where seed is dibbled (dropped into holes and covered) every six inches (15.5 cm). He further says that the plants do not grow well when strong manure is applied, and that it needs a good supply of water. Manjunath (1976: 276) states that ajowan can grow on any soil, but that a humus-rich loam is best. Sowing is described as either

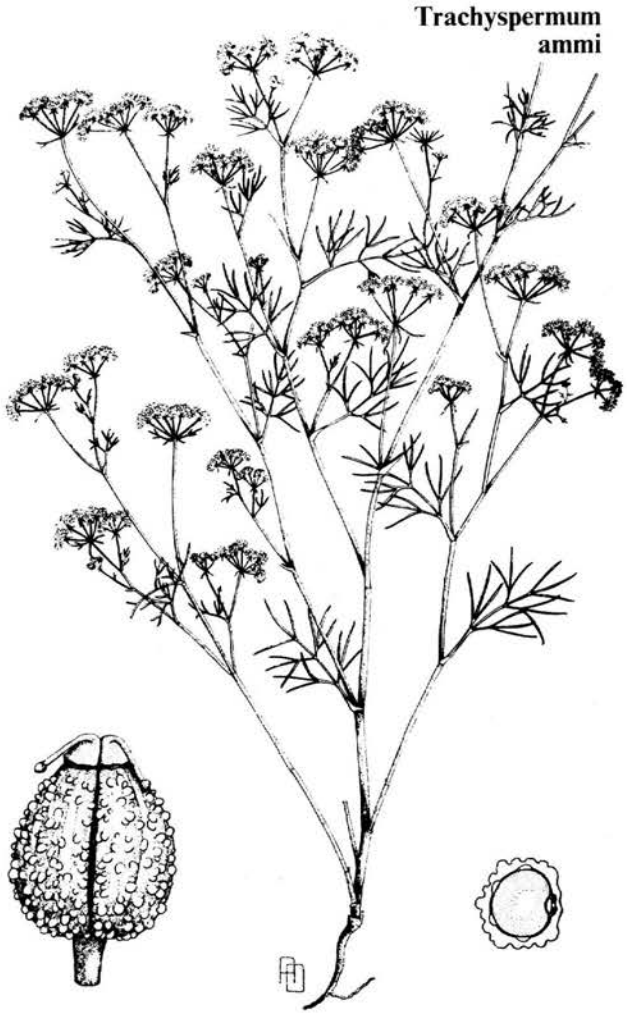

Figure 12.3. The whole plant and fruit of *Trachyspermum copticum* (L.) Link. Copied, with permission, from Tutin 1980: 135.

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dibbled or broadcast from September to November, depending on the region. If the seeds are broadcast, the farmer mixes them with moist sand so that they do not float away when the field is irrigated. This is done immediately after sowing and at intervals of between seven and ten days thereafter. Cool weather early in development seems to be best for a good crop. In India, the crop matures from February to May, depending on the climate. In colder northern India, the plants only begin to bloom in February (Ilyas 1980: 251). Harvesting can be by uprooting or by cutting, after which plants are dried in the sun on threshing-floors. The fruits are cleaned by rubbing with hands or feet (Manjunath 1976: 268).

In Ethiopia, small scale cultivation is widespread, and to some extent ajowan is planted as a field crop in certain provinces (Jansen 1981: 113). There the plant seems to grow best below 2000 m. The seed is broadcast at the beginning of the rainy season. Jansen (1981) does not specify which month this is, probably because it varies over the country. Broadly speaking, seasons of greatest rainfall correspond to coolest temperatures, but heavy rainfall can occur in warmer seasons (Westphal 1975: 20–25). Whenever ajowan is sown in Ethiopia, it is harvested between five and six months afterwards, usually slightly unripe to prevent seed losses (Jansen 1981: 118).

	Length (L)			Breadth (B)			Thickness (T)			L/B	B/T
	min	(avg)	max	min	(avg)	max	min	(avg)	max		
whole	1.25	(1.63)	1.94	0.80	(1.08)	1.28	0.35	(0.53)	0.70	1.5	2.0
split	1.54	(1.75)	1.98	0.37	(0.68)	0.80	0.35	(0.70)	0.96	2.6	0.97
average		(1.70)			–			(0.60)		–	–

Table 12.2. Measurements of whole and split ancient umbelliferous fruits and their ratios. All measurements are in mm.
L = length from stem insertion to tip of stylopodium.
B = breadth across widest part of fruit (whole) or mericarp (split), viewed laterally.
T = greatest thickness of fruit in transverse view.

English	French	German	Turkish	Arabic
Ajava (1)	Ammi (1)	Ägyptischer Kummel (1)	Emmus (1)	Anisun barri (1)
Ammi (1, 4)	Sison (1)	Ajowankummel (3)	Misir anisonu (1)	Kammuri khabashi (1)
Bishop's weed (1, 2)		Herrenkummel (1)	Nanahon (5)	Khallah (2)
Lovage (1)				Nakhwa (1)

Notes:

(1) Bedevian (1936: 149)
(2) Post (1932: 525)
(3) Germer (1985: 138)
(4) Usher (1974: 126)
(5) Baytop (1986: 54)

Table 12.3. Some common names of *Trachyspermum copticum*.

	Scientific name:	(Amarna fruits)	*Trachyspermum copticum* (L.) Link	*Apium graveolens* L.	*Pimpinella anisum* L.
	Common name:	—	ajowan	celery	anise
1.	Shape	Elongate ovoid	Ovoid (1)	Broadly ovoid (1)	Ovoid (2)
2.	Compression	Somewhat laterally compressed	Laterally compressed (1)	Laterally compressed (1)	Laterally compressed (3)
3.	Length (mm)	1.25–1.98	1.5–2 (1) 1.7–3.0 (5)	1.5–2 (2)	3–5 (2)
4.	Longitudinal ridges	Unwinged, rounded, distinct, no secondary ridges	Prominent primary ridges (1)	Prominent, slender ridges (1)	Prominent primary ridges (3)
5.	Surface texture	Tuberculate (=Papillate)	Papillate (1)	Smooth (1)	Hairy (2)

	Scientific name:	*Foeniculum vulgare* Miller	*Cuminum cyminum* L.	*Petroselinum crispum* (Mill.) Nym.	*Anethum graveolens* L.
	Common name:	fennel	cumin	parsley	dill
1.	Shape	Ovoid-oblong (1)	Ovoid-oblong (4)	Ovoid-ellipsoid (1)	Elliptical (1)
2.	Compression	Scarcely compressed (1)	Dorsally compressed (4)	Laterally compressed (1)	Strongly dorsally compressed (1)
3.	Length (mm)	4–6 (1)	4–5 (4)	2–2.5 (1)	4.5–6 (1)
4.	Longitudinal ridges	Thick primary ridges (1)	Narrow ridges, secondary more conspicuous (4)	Slender low primary ridges (1)	Low dorsal, winged marginal primary ridges (1)
5.	Surface texture	Smooth	Bristled or smooth (4)	Smooth (1)	Smooth (3)

	Scientific name:	*Coriandrum sativum* (L.)
	Common name:	coriander
1.	Shape	Ovoid-globose (1)
2.	Compression	Uncompressed (3)
3.	Length (mm)	2–6 x 2–5.5 (1)
4.	Longitudinal ridges	Faint primary and secondary ridges (1)
5.	Surface texture	Smooth (3)

Notes:

(1) Tutin (1980)
(2) Davis (1972)
(3) Personal observation
(4) Tutin (1968)
(5) Manjunath (1976)

Table 12.4. Comparison of selected umbellifer fruit characteristics, according to various sources and confirmed by personal observation.

12.8 Ancient parallels

The earliest recorded evidence for *T. copticum* may be in the writings of Pliny the Elder and Dioscorides (Germer 1985: 138). Darby, *et al.* (1977: 795) assert that Pliny was referring to this species in his *Natural History*, which was completed by 77 AD (Loeb edition [1938] Volume 1: viii). Pliny (*Natural History* XIX.47) mentions several kinds of cumin including Thebaic, Ethiopian, and African. All three types were used to cure stomach ache. Whether they are different species in the modern sense, or the same plant grown in various regions, cannot be assessed. The passage may be referring to other species altogether. According to Pliny, these cumins are wild; if *T. copticum* was as rare then as today, it is less likely that any of Pliny's wild cumins correspond to this plant. However, Pliny makes no mention of their frequency. In the section dealing with medicinal uses of cumin (*Natural History* XX.57), Pliny again refers to wild cumin, which is particularly efficacious for stomach trouble. Two varieties are named: Ethiopian and African cumin. As an ingredient in recipes it helps in the treatment of jaundice, stops nose-bleeds, and soothes swollen eyes; by itself it alleviates eye fluxes.

In the next passage (XX.58), Pliny mentions "a plant very like cumin which the Greeks call ami". He states that some considered "ami" to be the same plant as Ethiopian cumin. Hippocrates called ami royal cumin. It is distinguished from cumin because it is thinner and whiter, although in cooking is used much the same way, sprinkled on bread and in sauces. It is ascribed a variety of virtues: from relief of digestive problems, such as flatulence and gripe, to alleviating bruises and fluxes of the eyes, as well as promoting urine and menstruation. It is an ingredient in recipes to treat scorpion and horned viper wounds, and to purge the womb. It is said to act as an aid to conception if a woman smells it during sexual intercourse.

Because many umbellifers are very similar in appearance, are used in cooking, and frequently share the same medicinal properties, trying to apply a description from Pliny's *Natural History* to a particular species is very risky. The Ethiopian and other cumins mentioned by him could be *Trachyspermum copticum*; they could well be another umbellifer.

Dioscorides was a near-contemporary of Pliny; he compiled his herbal during the first century AD (Gunther 1934: v). The umbellifers described in Gunther's (1934) edition of Dioscorides include two plants whose names correspond to those given by Pliny. These are "Kuminon arion", which Hippocrates called kingly cumin (Gunther 1934: 302), and "ammi", called *Regium cuminum* (Gunther 1968: 304). Together they are credited with much the same properties which Pliny discusses. However, it seems certain that these plants correspond to the common or scientific names attached by the editor. These are cumin, for kuminon arion, and *Ammi visnaga* for ammi. Watt (1908) is emphatic that *T. copticum* is not the ammi of Dioscorides; he, too, ascribes Dioscorides' ammi to *Ammi visnaga*. Hooper and Field (1937: 95) write that the fruits of ajowan were well known as a medicine to the ancient Greeks and Arabs, but do not provide a source for this statement. Being an umbellifer, *T. copticum* has at least some of the properties specified by Pliny and Dioscorides, since many umbelliferous fruits are useful cures for digestive problems (Boulos 1983). This does not mean that ajowan is the plant they were discussing.

12.9 Modern uses

In India, a country where access to modern drugs is limited, traditional herbal remedies are still important. The use of ajowan remains widespread, where it is commonly cultivated in gardens (Chopra, Nayar and Chopra 1956: 245). It is an official medicine in Indian pharmacopoeia and is a household remedy for indigestion (Manjunath 1976: 268). Ajowan is relied on for a host of other maladies, on the basis of its effective antibiotic properties. Among other uses, its curative properties are depended on to relieve sore throats, bronchitis, and diarrhoea, and it is often recommended for the treatment of cholera (Manjunath 1976: 269). Processed to obtain the oil, it is used primarily as an antiseptic and carminative (to expel wind).

Although ajowan is more important as a medicinal than a spice or herb in India (Manjunath 1976: 268), its culinary role is much appreciated as well. It has been ranked with herbs better known in the West, such as celery seed, coriander, cumin, dill, and fennel (Hore 1979: 290). Its aromatic smell and pungent taste make it a popular ingredient of curries, as well as pickles, certain biscuits, confectionery, and drinks (Manjunath 1976: 268). It is also widely used as an ingredient of pan (Watt 1908: 285; Manjunath 1976: 269), a preparation analagous to chewing

tobacco. Ajowan is such a useful plant in India that breeding programs are in progress to improve it still further for both medicinal and culinary properties (Ilyas 1980: 252; Hore 1979: 295).

In Ethiopia, the other region of relatively widespread cultivation, ajowan is a commonly used spice. It is a regular ingredient of hot sauce made from chilli peppers, and seems to reduce its potency. It is also used in curries and to flavour bread and sometimes "katikalla", a kind of fermented drink. Usually the fruits are prepared for cooking by drying, roasting, and grinding. Medicinally, its main use is to alleviate stomach problems. Both fruits and roots are used, together with other spices. The fruits taken alone are sometimes used as a vermifuge or an abortifacient (Jansen 1976: 119).

Elsewhere, it is cultivated as a flavouring in the Eastern Mediterranean (Zohary 1972: 417; Tutin 1980: 134; Hedge and Lamond 1987a: 530). In tropical Africa, the fruits are used for the same purpose (Germer 1985: 138). In Egyptian herbal medicine, it is used as a simple (i.e. on its own) to treat kidney calculi (to expel stones from the kidney and ureter), worms, and dysentery. The prescription is one spoonful boiled in water and taken before breakfast daily (Ahmed, *et al.* 1979: 78). As an ingredient in different medicines, it is used variously to cure gastric bleeding, worms, diarrhoea, and dysentery (Ahmed, *et al.* 1979: 82). In Turkey it is used only in the locality where it is grown and is unknown elsewhere. It is a flavouring for bread, and acts as a carminative and galactagogue (stimulates milk flow of lactating women) (Baytop and Sütlüpinar 1986: 73).

12.10 *Trachyspermum copticum* in ancient Egypt

According to Darby, *et al.* (1977: 795), there is no documented use for *Trachyspermum copticum* in ancient Egypt. Germer (1979) does not mention it in her survey of medicinal plants from ancient Egyptian texts. Until now, apparently only one find of *T. copticum* fruits has been made, from an Egyptian vessel of unknown date and origin, now in the Florence Museum (Germer 1985: 138). Thus its presence at the Workmen's Village is the first securely dated and provenanced find from ancient Egypt.

The find of *T. copticum* fruits inside a well made and tightly bound bag shows they were deliberately placed there. Only four whole and five half fruits were preserved. There may originally have been more which perished, but the small size of the bag indicates it could never have contained a large store. It might have held about enough to flavour one or two meals, or batches of bread, for example. It may have held one measure for a medical preparation, or it may have contained seed for planting. Possibly it was intended for magical or ritual use.

The fruits could have been imported to the Workmen's Village, either from elsewhere in Egypt or from another country. In ancient times it may have been more widely cultivated in neighbouring regions than today, although we have no evidence one way or the other for such a suggestion. Because the plant is used as a spice or medicinal remedy, it would have been used in small quantities and would not be preserved by charring. We are not likely to find many other ancient *Trachyspermum copticum* fruits. However it was produced, it is probable that ajowan seed was a fairly expensive item in ancient Egypt, in which case the inhabitants of the Workmen's Village would not have had easy access to such an exotic import. If the fruits in the linen bag were to be used as an amulet or for some similar magical purpose, the possibility that they were brought in from outside becomes somewhat more plausible.

Is it possible that ajowan was cultivated at the Workmen's Village? Given sufficient water, it could have grown in the garden plots constructed there. If so, modern cultivation practices (see above) suggest that ajowan was sown in October or November, after the heat of summer was over. The Nile mud which filled the garden plots (Kemp 1987: 34, 36, Pl. IV) would have provided nutrients for the growing plants. Ajowan's adaptability to soil types would probably have allowed it to flourish even in beds with a thin layer of alluvial soil. Grown on such a small scale, it would have been possible to tend the plants well by keeping the plots watered, free of weeds, and preventing any wandering animals from having a snack. It may have taken five months between planting and harvest, but perhaps ideal conditions would have helped the plants ripen more quickly.

Because of their small size and extent, the garden plots at the Workmen's Village would have been most useful for flavouring or medicinal plants, which are needed in small quantities. Species

such as *Trachyspermum copticum*, which have a double role, would have been worth spending effort and precious water to grow.

12.11 Summary

The desiccated umbelliferous seeds found in a small linen bag from the Workmen's Village at el-Amarna are from *Trachyspermum copticum* (L.) Link. Its occurrence at this site means the species had entered Egypt by 1350 BC. Originating in India (Zeven and de Wet 1982: 79) and used in India and the Mediterranean during modern and possibly Classical times as a flavouring and medicine, it probably fulfilled the same function in ancient Egypt.

Acknowledgements

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