The Market for

Cardamom

in the European Union

ITC

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ABBREVIATIONS

AFNOR	Association Française De Normalisation
BSI	British Standards Institute
CIF	Cost, insurance and freight
ESA	European Spice Association
EU	European Union (currently 15 member countries)
EUROSTAT	Statistical Office of the European Union
FAO	Food and Agriculture Organization of the United Nations
FOB	Free on board
HS	Harmonized System nomenclature
ISO	International Standards Organization
ITC	International Trade Centre UNCTAD/WTO
MYQ	Mixed Yellow Quality
SITC	Standard International Trade Classification

GLOSSARY

Capsule	The dried nearly ripe fruit of cardamom. Also known as a pod.
Decorticated seeds	Seeds separated from the capsule.
Mixed Yellow Quality	Typical standard grade of whole cardamom fruits from Guatemala, used for grinding.

EXECUTIVE SUMMARY

The European Union imports on average 1,200 tonnes of cardamom annually with a total value of approximately US $6mn. Central America provides most of the supplies and Guatemala leads the exporters providing 83% of the total EU requirement. Other suppliers include India and Papua New Guinea. India also exports different varieties of cardamom apart from the small green 'true' cardamom that dominates European demand.

The leading markets for cardamom in the EU are Scandinavia, particularly Sweden and Finland, Germany and the UK. In Sweden, cardamom is used in baking, both at home and industrially, and in winter drinks such as spiced wines while in Finland cardamom is also used to flavour coffee. In Germany, cardamom is used for bakery as well as for meat seasoning, while in the UK cardamom demand is more as an ethnic, particularly Indian, seasoning, not only in home-cooking, but also in the strong ethnic catering and industrial sectors.

EU demand for cardamom is stable but supplies are heavily dependent on conditions in Guatemala. The alternative suppliers have minor significance in the market and fluctuations in the output from Guatemala have an important impact on availability in Europe. This effect is magnified by the inelastic demand in the Middle East.

Cardamom traded in a relatively narrow price range during the mid 1990s until a succession of poor crops towards the end of the decade pushed the market to historic high levels. Prices reached $15,500/tonne by early 2001. Production is expected to recover during 2001 and 2002, and a structural surplus may emerge as new plantings come into bearing, which should cause prices to return to more usual levels below $5,000/tonne.

Most of the EU imports of cardamom are ground and the retail sales of whole cardamom pods are minor. The most popular grades are therefore grinding grades with only limited requirement for the bold green types that are important in the Middle East trade.

New supplies from alternative origins would help to stabilise the availability of cardamom in the EU market. However, the European demand is not showing a trend of growth so new suppliers would have to compete directly with established Guatemalan exporters in quality, price and service. Industrial users of cardamom sometimes buy directly from exporters, but prospective suppliers to the EU should establish themselves in the market through the few dealers that import cardamom. Overall, the EU demand for cardamom is not large and the market can easily be oversupplied.

A. PRODUCT DESCRIPTION

This Market Brief covers cardamom, classified under the following codes:

HS	0908.30	Cardamom
SITC3	075.25	Nutmeg, mace, cardamom

[SITC3 nomenclature will not apply, as cardamom is not listed separately]

True cardamoms are the fruits and seeds of the perennial tropical herb *Elettaria cardamomum* (L) Maton of the ginger family, Zingiberaceae. There are two varieties of *E. cardamomum* in commerce but demand in Europe is almost entirely centered on the small true cardamom (E. cardamomum var. miniuscula Burk) also known as the Malabar type, which, unless otherwise specified, will be the main focus of this Market Brief. Other types of cardamom, for example Bengal Cardamoms or Siam Cardamoms, are harvested from species of Amomum and have very limited demand in Europe.

B. PRODUCTION, CONSUMPTION AND FOREIGN TRADE

Production

Cardamom may be cultivated under shade from rhizomes or seedlings and requires some three to four years to come into bearing. The individual flower spikes bear fruits at different stages of development; the fruits must be harvested by hand, so this crop requires a high labour input. In the small cardamoms, the larger and greener the pod, the higher the price.

The fruits are picked almost ripe and naturally or artificially dried before sale. Once dried, the cardamom capsules are small and green, or white if bleached. The dried pods are highly aromatic and have a distinctive mildly spicy floral or sweet flavour. They feature widely in Indian and Middle Eastern cooking and are particularly associated with the preparation of coffee in Saudi Arabia. Cardamom is traded internationally predominantly in the whole form, however it is also traded as decorticated seeds, with little processing at origin - the ground form loses its flavour too quickly.

Cardamom is produced around the tropics and consumed locally. It is indigenous to the highland rain forests of southern India but is now cultivated in many tropical upland areas, with notable production in Guatemala, Honduras, India, Sri Lanka, Nepal, Tanzania and Papua New Guinea. Guatemala and India are the largest producers of cardamoms. However, due to the strong domestic consumption in India, Guatemala dominates world exports.

Imports

The European Union imports over 80% of its requirement for cardamom from Guatemala. India provides another 7% and minor supplies are imported from Ecuador, Colombia and Papua New Guinea.

Total EU import figures indicate a constant demand over the past five years, with the decline in 1999 imports attributed to poor harvests in Guatemala and a subsequent rise in price. Figures include decorticated seeds as well as whole capsules but cardamom is mostly imported as capsules.

EU trade data must not be taken as definitive since there are recognised inaccuracies in reporting, and no account is taken of re-exports of cardamom in processed form as a mixed spice.

Table 1 - Origin of Cardamom Imports into the European Union

Origins	1995	1996	1997	1998	1999
Guatemala	979	1,196	1,091	1,111	971
India	90	81	95	94	94
Honduras	22	22	41	20	15
Colombia	0	10	11	11	32
Papua New Guinea	10	*	16	2	16
Ecuador	0	0	0	0	14
Total	1,132	1,374	1,279	1,330	1,180

Units: tonnes ***Source***: EUROSTAT

N.B. data show imports from partners outside the EU

Principal destinations into the EU are the United Kingdom, Germany and the Netherlands, from where much of the European spice trade is handled. However, many countries clearly also import directly, most notably Scandinavia where there is a significant demand in Sweden and Finland (see Table 2, below).

Table 2 - Destination of Cardamom Imports into the European Union

Origins	1995	1996	1997	1998	1999
France	20	11	32	21	19
Belg.-Lux	26	28	27	32	17
Netherlands	109	176	141	237	314
Germany	260	284	268	350	225
Italy	4	7	4	13	1
UK	325	453	402	356	344
Denmark	21	22	28	26	5
Spain	1	2	20	2	3
Sweden	237	207	241	216	202
Finland	121	174	110	70	44
Total	**1,132**	**1,374**	**1,279**	**1,330**	**1,180**

Units: tonnes ***Source***: EUROSTAT

N.B. data show imports from partners outside the E.U

Imports into Finland appear to be falling but this only reflects a change in the structure of the Scandinavian spice trade: Finland is increasingly being supplied through Sweden and Germany.

Apparent consumption

In Europe, cardamom is used as a flavouring both in industrial and domestic food preparation. It is commonly associated with ethnic foods, particularly Indian, but cardamom has also found a niche in Scandinavian and German bakery products, winter drinks and cakes. Decorticated seeds are also popular in Finland for flavouring coffee.

Table 3 shows the net imports of cardamom into the EU member states. The figures give some indication of the scale of consumption by deducting exports from the total imports to each country, but this data is distorted by storage and unaccounted re-exports, particularly of spice mixes.

Table 3 - Net Imports (apparent consumption) of Cardamom

Origins	1995	1996	1997	1998	1999
France	52	40	62	64	195
Belg.-Lux	9	13	8	10	14
Netherlands	68	126	66	117	104
Germany	229	277	338	287	211
Italy	11	11	6	25	10
UK	319	441	574	358	261
Denmark	28	33	42	55	43
Greece	10	6	6	7	56
Spain	2	5	12	8	5
Sweden	182	163	208	171	186
Finland	154	208	135	171	120
Total EU Imports	**1,070**	**1,330**	**1,467**	**1,296**	**1,259**

Units: tonnes ***Source:*** EUROSTAT

There has been a relatively stable pattern of consumption during the period between 1995-99, except in France where a sudden increase is seen in 1999 and in the UK where apparent consumption is falling.

C. MARKET CHARACTERISTICS

The EU market for cardamom is almost entirely supplied by Guatemala. Some new origins such as Honduras, Ecuador, Colombia and Papua New Guinea are appearing and the trade may welcome some alternatives to stabilise availability. The traditional suppliers such as India and Sri Lanka remain too expensive for the European demand and as there is competition with local consumption and the Middle Eastern market for these premium types.

Cardamom is a popular flavour in Scandinavia, particularly in Sweden and Finland. The origin of this popularity is obscure, but it may simply be that cardamom blends well with the other spices and flavours in general use. In Sweden, cardamom is used for baking and for winter drinks such as spiced wines. There is an approximately even division between the retail requirement and the bakery industry use. The Finnish demand for cardamom is mainly for coffee. Scandinavia has little requirement for the large bold types, preferring the grinding grades, MYQ or mixed greens, or the decorticated seeds for Finland. There is no demand for the large cardamom.

In Germany, cardamom is used by the bakery industry for Christmas cakes and by the meat industry as a seasoning. There is some retail demand for the whole capsules, but mostly the grinding grades are required. Decorticated seeds are re-exported.

In the UK, the largest market in the EU, demand for cardamom is more diverse and more orientated towards ethnic foods, currently a well-established and growing sector in the UK. Cardamoms are ground and blended into a variety of curry spices, particularly garam masala and korma blends. The catering sector providing Indian meals requires the whole pods for a number of rice dishes. Whole pods are often used in households of Indian origin. The large cardamoms used by the ethnic sector are imported directly from India and Nepal and rarely handled by the traditional spice dealers. The traditional British cuisine makes little use of cardamom although there is some retail demand for both the ground spice and the whole capsules.

Demand elsewhere in Europe is not as important as in the UK and Scandinavian markets.

D. MARKET ACCESS

Tariffs

Cardamoms enter the European Union free of any import duties and quotas.

Regulations

The harmonization of legislation across the EU has simplified the entry and circulation of goods into the EU. Food regulations applied to cardamom cover a number of elements including:

- Labelling
- Food additives
- Pesticides and contaminants
- Packaging waste
- Hygiene
- Organic products
- Standards
- Phytosanitary questions
- Ethical issues.

Standards and Grades

While there are national standards that apply in different markets, generally they are based on those of the International Standards Organisation and tend to refer to the Asian supplies. References for these can be found in the 'List of Sources' section at the end of this Brief. It is however, more important to match the customers' requirements.

The European Spice Association has developed a list of Quality Minima for spices (see Annex 1).

Guatemalan exports are graded according to size and colour and the most important grade to the EU is the MYQ, the mixed yellow quality. The industries prefer a size of 400g per litre, but this grade has scarcely been available recently and buyers have had to accept 380g/l or less.

The large bold grade of Guatemalan cardamom is also required for retail sale, but this is not the premium grade required by Saudi Arabia.

E. Prices

From 1996 to 1998 the cardamom trade was described as flat, as a structural surplus weighed on the market. Lately however, the balance of supply and demand has been upset by a succession of poor crops in Guatemala compounded by an increase in Indian consumption of small cardamoms, resulting in the global market having insufficient supplies. Prices have reacted accordingly with historic highs.

Where traders had come to expect prices in the range of $3,000 to $5,000 /tonne during the late 1990s, prices have been as high as $15,500 /tonne in early 2001.

Table 4 (below) shows the unit import value of cardamom calculated from the EU import data to give an indication of CIF values over time for different origins. These are not real prices, and there may be inaccuracies in reporting, but they do indicate trends.

Table 4 - Unit Import Value of Cardamom

	1995	1996	1997	1998	1999
Guatemala	3.56	2.35	2.44	2.88	6.05
Honduras	3.32	2.64	2.61	2.60	3.80
India	3.10	3.23	3.67	3.22	3.98
Sri Lanka	6.40		17.33	19.33	22.50

Units: ECU/kg ***Source***: Calculated from EUROSTAT

1 ECU/USD for 1995-1999 respectively: 1.308,1.270,1.134, 1.121, and 1.066

The Market News Service of the ITC and the Public Ledger publish up-to-date price information for cardamom in a number of markets. These are useful for monitoring current conditions, but have less relevance from a historical perspective due to the speculative nature of the trade.

F. DISTRIBUTION CHANNELS

Cardamoms are imported by a number of spice traders as well as some processors. The cardamom trade is relatively straightforward and the processors and packagers often purchase directly. In Sweden, for example, the two major importers are also processors, one supplying the food manufacturers, especially the bakery industry, the other focusing on the retail and catering services.

The dealers handling cardamoms are located in London, Rotterdam and Hamburg for the most part. Not all the major spice traders handle cardamom, as volumes are quite small.

G. PACKAGING AND LABELLING

Bulk whole cardamom is usually imported in 40kg net weight cartons containing eight cartons of 5kg. The inner cartons are lined with polythene inners. Sometimes 20kg outers are preferred with only four inner cartons.

Labelling requirements include:

- Name of the product
- Name and address of producer or packer
- Date of packing
- Net mass (kg)
- Country of origin
- Code or Batch number
- Year of harvest
- Details of any special treatment
- Any other information requested by the purchaser

H. SALES PROMOTION

An exporter should be prepared to visit target markets with samples in order to establish contacts. Once there is a good contact, a flow of information should be maintained in both directions, with the exporter ensuring that the purchaser is up-to-date with progress in the production season.

A visit to a European trade fair can provide the exporter with valuable knowledge of the trade beyond his immediate experience as well as introducing new contacts. In particular, trade fairs can give insight to competitors' capabilities and the market issues of the moment.

Note that the exhibitors are generally sales orientated and less likely to be discussing their purchasing requirements.

Exhibiting at a trade show can provide an excellent showcase, but must be done properly for a positive effect. While the expense may be beyond the means of individual exporting companies, a co-operative effort between companies, or as a trade association, can divide the costs to a more manageable level.

The following trade fairs/exhibitions are the main events of interest to EU spice traders:

Title	Country	Month	URL/email
Alimentaria	Spain / Portugal	March –Annual	alim_lisboa@mfiberia.es
ANUGA	Germany	Oct –Biennial	anuga@koelnmesse.de
Biofach	Germany	Annual	www.biofach.de
European Ethnic Food, Drink, Restaurant and Catering	UK	Annual	www.europeanethnicfood.co.uk
Food Ingredients - Europe	UK (2001) but location varies	Biennial	www.fi-events.com
IFE	UK	March -Biennial	www.ife.co.uk
SIAL	France	Oct-biennial	www.sial.fr/index.htm

I. MARKET PROSPECTS

The 2000 cardamom crop finished early yielding the third successive poor turnout. European stocks have been depleted and prices have reached historic highs. There is some indication, from forward values, that prices are easing back, and certainly an increase in production is anticipated, although it may be too soon to expect a significant drop in prices.

The high prices will have stimulated an expansion of cultivation, and other increases in output are expected from some of the minor producers. However, there is a lag of at least three years between planting and the first harvest.

The impact of the high prices on consumption and particularly on longer-term demand is less clear. Certainly the high prices have put a temporary ceiling on demand, and consumption is not going to expand at these price levels. However, existing demand is relatively inelastic. Industries are not able to change their usage of cardamom easily as there is no substitute for the single spice. The difficulty facing the trade is not so much that the bakeries, for example, cannot handle the price rise, since cardamom is a small ingredient, but rather that the grinders have not able to find the qualities they require.

Similarly, in Saudi Arabia there is no substitute for cardamom in coffee preparation and the market will follow the price up.

The variation in demand comes from markets such as the UK where cardamom is incorporated in spice mixes and there is flexibility in the balance of the various components of a recipe. Also in the UK, there is a larger demand for the whole greens from the ethnic users, both domestically and in catering, and trade sources note that this market has already contracted.

Without the current historic high prices the market might be judged to be stable, with a slow growth rate set matching the macro-economic and demographic variables. The high prices will have capped consumption for a while, but are unlikely to cause a significant decrease in European demand.

J. IMPORTANT ADDRESSES

Importers

The import of cardamom into Europe is handled by many different companies, some acting as traders while others are processors buying directly from origin. The following is a selection of companies known to import.

No recommendation to trade is intended with this list, and all sellers are advised to make their own checks prior to entering into any financial commitments.

Germany (+49)	
Hamburger Gewürz-Mühle Hermann Schulz GmbH Grossmanstrasse 221 D-20539 Hamburg	Tel 040 78 97 01 30 Fax: 040 78 97 01 31
Hermann Laue GmbH Beimoorweg 11 D-22923 Ahrensburg	Tel 041 02 49 60 Fax: 041 02 49 61 04 http://www.hela-food.de
Schwab GmbH Postfach 11 03 84 D-20403 Hamburg	Tel 040 36 49 71 Fax: 040 36 77 90
Netherlands (+31)	
Catz International bv PO Box 180 3000 AD Rotterdam	Tel 10 411 3440 Fax: 10 411 89 13 http://www.catz.nl
Van Sillevoldt BV PO Box 64 3350 AB Papendrecht	Tel 78 615 1755 Fax: 78 615 3107
Sweden (+46)	

Bodén & Lindeberg Box 7072 187 12 Täby	Tel 08 544 408 00 Fax: 08 544 408 20 http://www.bodenlindeberg.se
Santamaria AB Box 63 431 21 Mölndal	Tel 031 674 200 Fax: 032 272 834 Info@santamaria.se
United Kingdom (+44)	
British Pepper & Spice Rhosil Road Brackmills Northampton NN4 7AN	Tel 01604 766 461 Fax: 01604 763 156
Chambers & Knight Thames House 18 Park Street London SE1 9EL	Tel 020 7357 7821 Fax: 020 7378 8582
Deltacrown Fooks & French Linton House 164-180 Union Street London SE1 0LH	Tel 020 7928 0404 Fax: 020 7926 1238
McCormick Thame Road Haddenham Buckinghamshire HP17 8LB	Tel 01844 292930 Fax: 01844 294294 http://www.cpdmccormick.com
T Choithram & Sons Choithram House Lancelot road Wembley Middlesex HA0 2BG	Tel 020 8903 8311 Fax: 020 8900 1426

Trade Associations

EUROPE European Spice Association 6 Catherine Street London WC2B 5JJ England Tel 44 (0)20 7836 2460 Fax: 44 (0)20 7836 0580	**ITALY (+ 39)** AIIPA - Associazione Italiana Industrie Prodotti Alimentari Corse di Porta Nuova 34 I-20121 Milan Tel 02 65 41 84 Fax: 02 65 48 22
BELGIUM (+ 32) AFISPA Roodebeekelaan 30 B-1030 Brussels Tel (0)2 743 87 46 Fax: (0)2 736 81 75	**NETHERLANDS (+ 31)** Nederlandse Vereniging voor de specerijhandel PO Box 64 3350 AB Papendrecht Tel (0)78 615 17 55 Fax: (0)78 615 31 07
FRANCE (+ 33) Syndicat National des Transformateurs de Poivres, Epices, Aromates et Vanille 8, Rue de l'Isly F-75008 Paris Tel (0)1 53 42 33 80 Fax: (0)1 53 42 33 81 Email covip@wanadoo.fr	**SPAIN (+ 34)** Afexpo Calle de Santa Catalina 13 E–30004 Murcia Tel (0)968 21 40 89 Fax: (0)968 21 96 77
GERMANY (+ 49) FACHVERBAND DER GEWURZINDUSTRIE E.v. Reuterstrasse 151 D-5300 Bonn 1 Tel (0)228 21 61 62 Fax: (0)228 22 94 60	**UNITED KINGDOM (+ 44)** International General Produce Association Ltd Gafta House 6 Chapel Court London EC2A 3DQ Tel (0)20 7814 9666 Fax: (0)20 7814 8383 http://www.igpa.com Seasoning and Spice Association 6 Catherine Street London WC2B JJ Tel (0)20 7836 2460 Fax: (0)20 7836 0580

Other Organizations

CBI **Centre for the Promotion of Imports from Developing Countries** P.O. Box 30009 3001 DA Rotterdam the Netherlands Tel + 31 10 201 3434 Fax: + 31 10 411 4081 http://www.cbi.nl	**ISO** **International Standardisation Organisation** PO Box 56 CH-1211 Geneva Tel + 41 22 749 01 11 Fax: + 41 22 733 34 30 http://www.iso.ch
CTA **Technical Centre for Agricultural and Rural Co-operation** P.O. Box 380 6700 AJ Wageningen the Netherlands Tel + 31 Fax: + 31	**ITC** **International Trade Centre** Palais des Nations P.O. Box 10 1211 Geneva 10 Switzerland Tel + 41 22 730 0111 Fax: + 41 22 733 4439 http://www.intracen.org
European Commission Rue de la Loi 200 B-1049 Brussels, Belgium Tel + 32-2 299-1111 (switchboard) Fax: + 32-2 295-0138 / 39 / 40 http://europa.eu.int/comm/index_en.htm	**Deutsche Gesellschaft f r Technische Zusammenarb. (GTZ) GmbH** Economic Devpt and Employment Prom Dag-Hammarskjöld-Weg 1-5 Postfach 51 80 D - 65726 ESCHBORN Germany Tel: (0049 6196) 79 1229, 79 0 Fax: (0049 6196) 79 6150 Email: jochem.lange@gtz.de URL: http://www.gtz.de

K. LIST OF SOURCES

Publications

Spices - Volume 2 - (1987) Longman Group Ltd, Harlow, England

Guidelines for Exporters of Spices to the European Union - Commonwealth Secretariat, London, UK

Market Research File on Spices – Overview of the EU, Poland, Hungary, Czech Republic, Russian Federation - International Trade Centre, Geneva, Switzerland

Spices & Herbs A Survey of the Netherlands & Other Major Markets in the European Union - (1999) CBI, the Netherlands

Dried Herbs & Spices – A packaging Manual - (1999) International Trade Centre, Geneva, Switzerland

Handbook of Spices, Seasonings, & Flavorings - (2000) Technomic Publishing Company, Inc, Lancaster USA

Periodicals

Food News
80 Calverley Road
Tunbridge Wells
Kent TN1 2UN
UK
Tel + 44 (0)1892 533 813
Fax:+ 44 (0)1892 511 803
http://www.agra-food-news.com

Market News Service
International Trade Centre
Palais des Nations
P.O. Box 10
1211 Geneva 10
Switzerland
Tel + 41 22 730 0111
Fax:+ 41 22 733 4439
http://www.intracen.org

Miller Freeman BV
PO Box 200
3600 AE Maarssen
The Netherlands
Tel + 31 (0)346 55 94 44
Fax: + 31 (0)346 57 38 11
http://www.mfbv.com

The Public Ledger
80 Calverley Road
Tunbridge Wells
Kent TN1 2UN
UK
Tel + 44 (0)1892 533 813
Fax: + 44 (0)1892 544 895
http://www.public-ledger.com

Marchés Tropicaux
190 Boulevard Haussmann
75008 Paris
France.
Tel + 33 (0)1 44 95 99 50
Fax: + 33 (0)1 44 95 99 79
http://www.marches-tropicaux.com

Standards

ISO 882-1:1993/Cor 1:1996 Cardamom (Elettaria cardamomum (Linnaeus) Maton var. minuscula Burkill) —specification – Part 1: Whole Capsules

ISO 882-2: 1993/Cor 1:1996 Cardamom (Elettaria cardamomum (Linnaeus) Maton var. minuscula Burkill) —specification – Part 2: Seeds

Websites

Sites of interest, often with good links to other sites, include:

- http://ipm_www.ncsu.edu/cernag/cern.html — virtual library of agriculture
- http://www.fintrac.com/gain/ — wide range of horticultural information from production through to marketing
- http://www.natural-products.net — useful address lists
- http://www.raise.org — USAID funded initiative, providing market information and technical assistance to increase Rural and Agricultural Incomes with a sustainable Environment
- http://www.ucdavis.edu — Website of the University of Davis in California. Extensive publications and resources

ANNEX I

EUROPEAN SPICE ASSOCIATION SPECIFICATIONS OF QUALITY MINIMA FOR HERBS AND SPICES - CARDAMOM

Abbreviations: weight by weight (W/W), ash insoluble acid (AIA), volatile oil (V/O), volume by weight (V/O)

SUBJECT	SPECIFICATIONS
Extraneous matter	Herbs 2%, Spices 1%
Sampling	(For routine sampling) Square root of units/lots to a maximum of 10 samples. (For arbitration purposes) Square root of all containers e.g. 1 lot of pepper may = 400 bags, therefore square root = 20 samples.
Foreign Matter	maximum 2%
Ash	maximum 9% W/W
Acid Insoluble Ash	maximum 2.5% W/W
H_2O	maximum 12% W/W
Packaging	Should be agreed between buyer and seller. If made of jute and sisal, they should conform to the standards set by CAOBISCO Ref. C502-51 -sj of 20-02-95 (see Annex II). However, these materials are not favoured by the industry, as they are a source of product contamination, with loose fibres from the sacking entering the product.
Heavy Metals	Shall comply with national/EU legislation.
Pesticides	Shall be utilised in accordance with manufacturers' recommendations and good agricultural practice and comply with existing national and/or EU legislation.
Treatments	Use of any EC approved fumigants in accordance with manufacturers' instructions, to be indicated on accompanying documents. (Irradiation should not be used unless agreed between buyer and seller).
Microbiology	Salmonella absent in (at least) 25g. Yeast & Moulds 10^5/g target, 10^6/g absolute maximum E Coli. 10^2/g target, 10^3/g absolute maximum Other requirements to be agreed between buyer and seller.
Off Odours	Shall be free from off odour or taste.
Infestation	Should be free in practical terms from live and/or dead insects, insect fragments and rodent contamination visible to the naked eye (corrected if necessary for abnormal vision).
Aflatoxins	Should be grown, harvested, handled and stored in such a manner as to prevent the occurrence of aflatoxins or minimise the risk of occurrence. If found, levels should comply with existing national and /or EU legislation.
Volatile Oil	4% V/W min
Adulteration	Shall be free from.
Bulk Density	To be agreed between buyer and seller.
Species	To be agreed between buyer and seller.
Documents	Should provide: - details of any treatments the product has undergone; name of product; weight; country of origin; lot identification/batch number; year of harvest.

NOTES ON METHODOLOGY USED IN SETTING STANDARDS

Moisture	ISO 939
Total Ash	ISO 928
Acid Insoluble Ash	ISO 930
Volatile Oil	ISO 6571

Co-ordinates of the European Spice Organization can be found listed under Other organizations.'