



PROCESSING OF CORIANDER

Introduction

Coriander (*Coriandrum sativum* L.) is an annual herb with branching stems and small white, pinkish flowers that grows to a height of about 90cm. It is a member of the same family as carrots and parsley (Umbelliferae) and is native to the Mediterranean and Middle East. Coriander, which is also known as Chinese parsley and cilantro, is grown for its seeds and leaves, both of which are used in a range of dishes. Coriander requires well drained soils and plenty of warmth and sunshine. It is grown as a crop in India, Russia, Brazil, South America, North America and Holland.

Uses

The seeds are tiny globes, about the same size as peppercorns, which are a pale creamy brown colour. The seeds from Indian coriander tend to be elongated while the seeds from European coriander are more round in shape (see figure 1). They are dried and ground and included in curry powder and garam masala powder in Indian cooking. Quite frequently ground coriander and cumin are used in the same dish.

The leaves are used as a fresh green vegetable or salad leaf. Coriander seed oil is used for a range of medicinal applications. It has antibacterial properties and is used in treatments for colic, neuralgia and rheumatism. It has industrial applications in pharmaceutical applications and tobacco where it is used to counteract unpleasant odours.

Harvesting

Harvesting at the correct stage of ripeness is essential for the coriander seed to have a full aroma. Under-ripe coriander seeds have an unpleasant flavour and lack the distinctive spicy aroma and over-ripe seeds (after about 90 days from planting) tend to shatter which reduces the yield. Since ripening is progressive on the plant, harvesting should take place when between half and two thirds of the seeds are ripe. To minimise breakage, the plants should be cut during the early morning while the dew is on the plant or in the late evening. After harvest the seed is dried and stored for later use.

Drying

The typical aroma and flavour of coriander seed is not fully developed until it is completely dry. Usually the whole plants are spread out in the sun to dry. They are left to wither for two days until the moisture content is about 18%. They are then threshed to remove the seeds which are further dried to a final moisture content of 9%. The second drying stage should be in the shade to prevent over-heating of the seeds. The drying time depends on the climate.



Figure 1: Fresh coriander
Photo: Practical Action / Neil Noble



Figure 2: Coriander seed.
(http://www.uni-graz.at/~katzer/engl/Cori_sat.html)

In some countries artificial dryers are used to dry the seed. It is important to ensure that the temperature of drying ovens does not exceed 100°C as this reduces the levels of volatile oils. The clean seed should be stored in bags or closed containers.

Essential oil extraction

The ground seeds can be used for the extraction of essential oils. The seed is ground immediately prior to distillation to increase the yield of oil and reduce the distillation time. The essential oil content varies from 0.1-1.5% and contains a range of different essential oils. For more information on how to distil essential oils, see the Practical Action Technical Brief.

Equipment suppliers

This is a selective list of suppliers of equipment and does not imply endorsement by Practical Action.

This website includes lists of companies in India who supply food processing equipment.

http://www.niir.org/directory/tag/z,,1b_0_32/fruit+processing/index.html

Dryers

Acufil Machines

S. F. No. 120/2, Kalapatty Post Office
Coimbatore - 641 035
Tamil Nadu
India
Tel: +91 422 2666108/2669909
Fax: +91 422 2666255
E-mail: acufilmachines@yahoo.co.in
acufilmachines@hotmail.com
<http://www.indiamart.com/acufilmachines/#products>

Bombay Engineering Works

1 Navyug Industrial Estate
185 Tokersey Jivraj Road
Opposite Swan Mill, Sewree (W)
Mumbai 400015
India
Tel: +91 22 24137094/24135959
Fax: +91 22 24135828
E-mail: bomeng@vsnl.com
<http://www.bombayengg.com/contact.html>

Bry-Air (Asia) Pvt Ltd

21C Sector 18
Gurgaon – 122015
India
Tel: +91 124 4091111
Fax: +91 124 4091100
E-mail: enquire@pahwa.com
<http://www.bryair.com/index.htm>

Tata Energy Research Institute (TERI)

Darbari Seth Block
IHC Complex, Lodhi Road
New Delhi
India
Tel: +91 11 2468 2100/ 4150 4900
Fax: +91 11 2468 2144/ 2468 2145
E-mail: mailbox@teri.res.in
www.teriin.org/tech_cardamom.php

Premium Engineers Pvt Ltd

Plot No 2009, Phase IV, GIDC
Vatva, Ahmedabad 382445
India
Tel: +91 79 25830836
Fax: +91 79 25830965

Bry-Air China

No 951-F Jian Chuan Road
Minhang District
Shanghai 200240
P R of China
Tel: +86 21 51591555
Fax: +86 21 51591559
bryairc@online.sh.cn; bryair@vip.sina.com
www.bryair.com.cn

Rank and Company

A-p6/3, Wazirpur Industrial Estate
Delhi – 110 052
India
Tel: +91 11 7456101/ 27456102
Fax: +91 11 7234126/7433905
E-mail: Rank@poboxes.com

Bry-Air (Korea)

202 2F DH Building, 174-2 Songpa-dong
Songpa-gu
Seoul, Korea
Tel: +82 2 414 0629
Fax: +82 2 417 2622
E-mail: drikorea@hanmail.net
Webiste: www.drikorea.co.kr

Bry-Air (Malaysia)

Sdn Bhd (197712-W)
 Lot 11, Jalan P/7, Bangi Industrial Estate
 43650 Bandar Baru Bangi
 Selangor, Malaysia
 Tel: 603 89256622
 Fax: 603 89259957
 E-mail: bryair@bryair.com.my
 Website: www.bryair.com.my

Industrias Technologicas Dinamicas SA

Av. Los Platinos 228
 URB industrial Infantas
 Los Olivios
 Lima
 Peru
 Tel: +51 14 528 9731
 Fax: +51 14 528 1579

Ashoka Industries

Kirama
 Walgammulla
 Sri Lanka
 +94 71 764725

Alvan Blanch

Chelworth, Malmesbury
 Wiltshire
 SN16 9SG
 UK
 Tel: +44 1666 577333
 Fax: +44 1666 577339
 E-mail: enquiries@alvanblanch.co.uk
 Website: www.alvanblanch.co.uk

Bry-Air (Thailand)

448 Richie Tower, 2nd Floor
 Ratchadaphisek Road
 Samsennai Huayekhwang
 Bangkok 10320
 Thailand
 Tel: +66 2 5415479, 9389304
 Fax: +66 2 9389314
 E-mail: info@bryair.co.th
 Website: www.bryair.co.th

Bry-Air (Africa)

Lower Ground Floor
 Lakeside Place
 1 Ernest oppenheimer Drive
 Bruma-2198, Bedfordview
 Johannesburg
 South Africa
 Tel: +27 11 6150458
 Fax: +27 11 6166485
 E-mail: bryairfrica@telkomsa.net;
 E-mail: bryairfrica@pahwa.com

Kundasala Engineers

Digana Road
 Kundasala
 Kandy
 Sri Lanka
 Tel: +94 8 420482

Mitchell Dryers Ltd

Denton Holme, Carlisle
 Cumbria
 CA2 5DU
 UK
 Tel: +44 1228 534433
 Fax: +44 1228 633555
webinfo@mitchell-dryers.co.uk
<http://www.mitchell-dryers.co.uk/>

Contacts

The following contacts should be able to provide further information:

Tata Energy Research Institute (TERI)
 Darbari Seth Block
 IHC Complex, Lodhi Road
 New Delhi
 India
 Tel: +91 11 2468 2100/ 4150 4900
 Fax: +91 11 2468 2144/ 2468 2145
mailbox@teri.res.in
www.teriin.org/tech_cardamom.php

Indian Institute of Spices Research (IISR)
Marikunnu PO, Calicut
Kerala
India 673012
Tel: +91 495 2731346
+91 495 2730294
<http://www.spices.res.in/spices/coriander.php>

Indian Institute of Technology (IIT) Bombay
Powai
Mumbai 400076
India
Tel: +91 22 2572 2545
Fax: +91 22 2572 3480
<http://www.ircc.iitb.ac.in/webnew/>

Reference and further reading

Drying of Foods Practical Action Technical Briefs
Essential Oil Distillation Practical Action Technical Briefs
Spice Processing Practical Action Technical Briefs
Cumin Processing Practical Action Technical Briefs
Small-scale Drying Technologies Practical Action Technical Brief

Practical Action

The Schumacher Centre for Technology and Development
Bourton-on-Dunsmore
Rugby, Warwickshire, CV23 9QZ
United Kingdom
Tel: +44 (0)1926 634400
Fax: +44 (0)1926 634401
E-mail: inforsew@practicalaction.org.uk
Website: <http://www.practicalaction.org/>

This document was produced by Dr. S Azam Ali for Practical Action in March 2008. Dr. S Azam-Ali is a consultant in food processing and nutrition with over 15 years experience of working with small-scale processors in developing countries.

technical brief