CURCUMA FINGERS

Food and Agriculture Organization of the United Nations

Spices Processing Toolkit

CURCUMA FINGERS

1.- Curcuma Fingers General Information

The composition of the secondary rhizome (fingers) it different from the composition of the primary rhizome, mainly due to the curcumin content that is the pigment giving the characteristic yellow-orange color to curcuma. The fingers of the curcuma present a higher curcumin content, a reason why they might have more important applications than the primary rhizome.

Although the main product derived from the primary rhizome is the curcuma powder, the secondary rhizomes are more valuable when marketed in whole. Those secondary rhizomes are mainly used for extraction of compounds such as curcumin, therapeutic substances, and oils.

The curcuma extracts are widely used in conserves, beverages, butter, cheeses, and sweets.

India, the main curcuma producer, has established some quality patterns and classifications for the curcuma fingers.

General Characteristics

The turmeric fingers are secondary rhizomes of the plant Curcuma longa L.

They must:

- be well set as well as closely grained and free from bulbs (primary rhizomes) and ill-developed porous fingers;
- have the shape, length, color and other characteristics of the variety;
- be completely dry and free from damage caused by weevils, moisture, overboiling or fungus attack, except 1% and 2% by weight of those rhizomes damaged by moisture or overboiling should be allowed at grade good.

Definition

- Length must be longitudinally reckoned from one tip of the finger to the other one. Either core color and flexibility must be reckoned from fingers recently broken by hands.
- Foreign matter includes chaff, dry leaves, clay particles, dust, dirt and other extraneous materials.

- Chura and defective bulbs include immature small fingers and/or bulbs internally damaged, hollow and porous bulb, cut bulbs and other types of damaged bulbs except weevilled bulbs.
- Tolerance limits for mould 3% by weight and insect defilled/infested 2.5% by weight.

Grade designations and definitions of quality of Curcuma's Fingers						
Special characteristics						
Grade designation	Flexibility	*Pieces percentage by weight (max.)	Foreign percentage by weight (max)	Chura and defective bulbs percentage by weight (max.)	Percentage of bulbs by weight (max.)	Admixture varieties of turmeric (percentage)
Special	Should be hard to touch and break with metallic twang	2	1.0	0.5	2.0	-
Rajapore Special	-	3	1.0	3.0	2.0	2.0
Alleppey Good	Should be hard to touch	5	1.0	3.0	4.0	-
* Pieces are fingers, in whole or broken, with 15 mm length or less. * * turmeric fingers from varieties other than Alleppey, produced in India.						
Source: Samexagency						

2.-Curcuma Fingers Processing Details

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2.1.-Blanching

The main objectives of the healthy blanching are:

- Elimination of air from the material tissues, therefore reducing the possibility to occur oxidation of the material during storage;
- Fixation and emphasis of the product coloration;
- Reduction of the microbial load by the elimination of vegetative cells, fungus, yeasts and inactivation of deteriorative enzymes;
- Elimination of unpleasant odors and flavors;
- Removal of mucilaginous substances.

The blanching stage usually occurs through equipments that use water or steam. The blanching equipments provided with vapor injection system directly on the product usually present lower efficiency in relation to the use of energy and requires higher investments.

The water-bath blanching basically consists in conditioning the vegetables into a basket made of aluminum or stainless steel, by submerging them into boiling water.

The blanching of the rounded curcuma lasts from 1 to 3 minutes. To blanching the fingers of the curcuma, however, it might take more time because those fingers are not sliced.

2.2.-First Drying

The first drying is accomplished in order to reduce the moisture content of the raw material and to darken the fruits. The decreased activity of the water within the fruits is important for their conservation during transportation, as well as until they are properly processed.

After harvesting, the bunches taken to dry in boards in the sun or properly fenced terrain. During the drying process, the dry fruits get loose from the axis of the bunches. The pepper must be revolved in order to obtain an uniform drying. Those bunches axes that are mixed with the product may be removed with a small wooden scraper. The care should be taken to avoid the pepper to become wet by the rain or condensation.

2.3.- Weighting

After dehydration, the weighting and calculation of the dehydration process production are accomplished.

2.4.-Packaging

The curcuma products must be packaged into polypropylene bags or flasks or into glass flasks. All packagings must be hermetically sealed to avoid either loss of product mass or modifications into moisture content. Care should be taken when removing the air from the packaging before sealing.

The wavy cardboard boxes are recommended for secondary packaging. In these containers, it is common to introduce silica-gel that is a chemical product able to absorbing the air humidity, therefore prolonging the storage time.

2.5.-Storage

The products should be stored in fresh places that are protected from both light and moisture. The light changes the color, whereas heat reduces the life time e of the product.