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Agenda Item 11(a)

CX/PFV 14/27/13

August 2014

ENGLISH ONLY

## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX COMMITTEE ON PROCESSED FRUITS AND VEGETABLES

27<sup>th</sup> Session

Philadelphia, Pennsylvania, United States of America,  
8 – 12 September 2014

#### DISCUSSION PAPER ON CODEX STANDARDS OF DRIED CHILLIES, DRIED GARLIC & DRIED GINGER

(Prepared by India)

#### Scope

The scope of this paper is to seek clarification whether the quality standards for the following commodities fall under the purview of CCPFV:

- i) Dried or dehydrated Chillies in whole, crushed, and ground forms obtained from the fruit of *Capsicum annuum* of Solanaceae family.
- ii) Dried or dehydrated Garlic in whole, sliced, crushed, powdered and ground forms or as garlic flakes and granules obtained from the bulb of *Allium sativum*.
- iii) Dried or dehydrated Ginger in whole, sliced, crushed, powdered and ground forms obtained from the rhizome of *Zingiber officinale*.

#### Introduction

The dried chillies, garlic and ginger have been a part of the human diet for at least 1,000 years. These are widely used around the world for its pungent flavor as a seasoning or condiment. A brief summary pertaining to dried chillies, garlic and ginger along with the market potential and the main aspects to be covered in the standards are given below.

**CHILLI:** Chilli, botanically-known as *Capsicum annuum* of *Solanaceae* family. *Capsicum annuum*, which is perennial but often cultivated as an annual in temperate climates, is a many-branched plant, growing up to 75 cm (30 in) in cultivated varieties, often shrubby in appearance. The fruits are many seeded berries, pod-like, but with no sutures that vary considerably in size and shape, ripening to green, yellow, orange, red, or purple.

Capsicum genus is a diverse plant group that encompasses a range of sub-species from sweet green bell peppers to fiery habanero peppers. Sub-species are classified by their fruit characteristics, including pungency, colour, shape, flavour, size and their use. There is a plethora of sub-species. Generally, pepper, chili, chile, chilli, aji, paprika and capsicum are used interchangeably for plants of the genus Capsicum.

The fruits of non-pungent (sweet) varieties are eaten raw in salads or cooked as a vegetable. They are rich sources of vitamin C (ascorbic acid) and vitamin A. Pungent types of dried chillies, are used as a condiment for seasoning. The dried fruits are ground to powder and used as an ingredient in curry powder. The pungency is mainly due to the presence of chemical compounds called capsaicinoids. Its extracts are used as flavourings and also used in pharmaceutical products.

**GARLIC:** *Allium sativum*, commonly known as garlic, is a species in the onion genus, *Allium*. Garlic is one of the most popular condiment in the world. The bulb or subterranean reserve structure derived from leaves is the plant part used. It has a strong characteristic odour and taste. Garlic is a perennial plant of the lily family. It grows to a height of about 60 cm. It has short, flat upright leaves of 15 - 30 cm. The tall single flower stem bears spherical head of pale pink or greenish-white blooms, often mixed with tiny bulbils. The subterranean white-skinned bulb or corn is subdivided into numerous 'cloves'.

Garlic, originated in Central Asia, is widely cultivated all over the world; the major producers being Bangladesh, Egypt, Ethiopia, India, Myanmar, People's Republic of China, Republic of Korea, Russia, the US and Ukraine. It features in the mythology, religion and culture of many nations. In Europe, garlic has been common used since the days of the Roman Empire, and it was extensively used in India and East Asia even before the arrival of Europeans. After the Age of Exploration, its use spread rapidly to Africa and both Americas.

Raw garlic is used in the preparation of garlic powder, garlic salt, garlic vinegar, garlic cheese croutins, garlicked potato chips, garlic bread, garlicked bacon etc. Spray dried garlic products, liquid garlic preparations are other products. It is widely used in a multitude of salads, spring rolls, soups and Mediterranean sauces. Raw garlic may also be pickled in vinegar or olive oil. Herbal vinegar is commonly made with one or two garlic cloves per litre vinegar. Usage of fried or cooked garlic is, however, much more common. On heating, the pungency and strong odour get lost and the aroma becomes more subtle and less dominant, harmonizing perfectly with ginger, pepper, chillies and many other spices. Therefore, it is an essential ingredient for nearly every cuisine of the world. Garlic products include garlic butter, dried flakes and garlic salt.

**GINGER:** Ginger is the underground rhizome of the ginger plant, known botanically as *Zingiber officinale*. The flesh of the ginger rhizome can be yellow, white or red in color, depending upon the variety. It is covered with a brownish skin that may either be thick or thin, depending upon whether the plant was harvested when it was mature or young. The ginger rhizome has a firm, yet striated texture and a taste that is aromatic, pungent and hot. It can be used fresh, dried and powdered, and as a juice or oil.

Native to southeastern Asia, ginger has been renowned for millennia in many areas throughout the world. Ginger is mentioned in ancient Chinese, Indian and Middle Eastern writings, and has long been prized for its aromatic, culinary and medicinal properties. Obtained by the Greeks and Romans from Arab traders, it was one of the first oriental spices to arrive in Europe. It is widely grown as a commercial crop in south and south-east Asia, tropical Africa (especially Sierra Leone and Nigeria), Latin America, the Caribbean (especially Jamaica) and Australia.

### **Main Aspects to be Covered**

The standard for dried chillies, garlic & ginger entails aspects related to the physical parameters, safety and labeling in order to provide adequate product characteristics and to protect consumer's health. This also covers those related to the establishment of minimum quality requirements, maturity requirements, definition of quality classes and their tolerances. To supply high quality safe products, the objective of the standards are to:

- Define the categories to classify the product in accordance with the characteristics; taking into account the whole, crushed, cracked, sliced, powdered, ground, dehydrated form including a reference to the genus and the species.
- Including provisions for basic composition and other permitted ingredients.
- Include the provisions to be considered related to the uniformity of the packaged product and the packaging used
- Include provisions for the labeling and marking of the product in accordance with the general standard for the labeling of pre-packaged foods.
- Establish physical and chemical quality parameters required for categorizing the produce into different classes. (moisture, volatile oil, fibre, total ash, Scoville index, colour profile etc.)
- Specify the acceptable levels of defectives, lot acceptance and other quality tolerances like extraneous matter.
- Provisions for food additives, contaminants, pesticide residues food hygiene and method of analysis according to the pre-existing Codex standards.

### Pattern of International Trade in Dried Chillies, Dried Garlic & Dried Ginger

**CHILLIES:** Chilli, is an important commodity widely used in food and by food industry and medicine and one of the oldest traded commodities in the world. The major producers of Chilli are India, China Peru, Bangladesh, Pakistan, Thailand, Myanmar, Ethiopia, Ghana, Viet Nam, Benin, Egypt and Nigeria. Where as the major exporters of Chillies are India, China, Peru, Malaysia, Spain, Mexico, Tunisia, Thailand Pakistan, Brazil, the Netherlands, Zimbabwe and Germany. India, China and Peru are the pioneers in the supply of Chilli to the world market.

Total imports of chillies by consuming countries across the world are estimated to be 2,110,405 Tonnes in 2011, with more than 30% growth in a decade span and it is on the increase. Major importers of chillies are Malaysia, United States of America, Thailand, Sri Lanka, Bangladesh, Mexico, Spain, Germany, Indonesia, Japan, Republic of Korea, Netherlands, United Arab Emirates and United Kingdom. Demand for chillies is bound to go up in different markets. The annual worldwide production of Chillies accounts to nearly 3,352,163.00 Tonnes from 1,989,664 Hectares.

YEAR	EXPORT DATA		IMPORT DATA	
	Quantity (In Tonnes)	Value (In US \$ 1,000)	Quantity (In Tonnes)	Value (In US \$ 1,000)
2007	523,102.00	912,456.00	503,182.00	856,838.00
2008	521,479.00	1,007,027.00	510,566.00	957,952.00
2009	556,037.00	970,186.00	532,418.00	933,670.00
2010	548,420.00	1,053,140.00	533,970.00	983,465.00
2011	546,853.00	1,308,303.00	536,163.00	1317222

Source: FAOSTAT

**GARLIC:** According to the production data from FAOSTAT for the year 2012, the total production of Garlic is nearly 24 million tonnes of which about 80% is from China. Egypt, India, Republic of Korea and Russia are the other countries leading in garlic production. The total export of garlic in 2011 accounts to 1.95 million tonnes. The major exporters are China, Argentina and Spain. Indonesia and Brazil have the major share in the garlic import which accounts to 1.85 million tonnes.

YEAR	EXPORT DATA		IMPORT DATA	
	Quantity (In Tonnes)	Value (In US \$ 1000)	Quantity (In Tonnes)	Value (In US \$ 1000)
2007	1,758,982	1,325,353	1,714,183	1,233,038
2008	1,829,001	1,072,576	1,924,913	1,182,667
2009	1,910,071	1,554,057	1,769,325	1,276,821
2010	1,681,948	3,038,623	1,656,908	2,325,483
2011	1,975,108	2,834,780	1,850,917	2,355,292

Source: FAOSTAT

**GINGER:** Ginger is one among the oldest commodities to be traded internationally. The major ginger producing countries are Bangladesh, Brazil, China, India, Indonesia, Jamaica, Philippines, Nepal, Nigeria, Sierra Leone and Thailand. Developing countries from Asia lead in the supply of ginger to the world market. India though is the top producer of the commodity, China is the biggest exporter. Major importers of ginger are Canada, France, Germany, Japan, Malaysia, Singapore, the Netherlands, the UK and the US. The annual worldwide production of Ginger in 2012 accounts to nearly 2 million tonnes, of which about 550 thousand tonnes were traded internationally generating about US \$650 million.

YEAR	EXPORT DATA		IMPORT DATA	
	Quantity (In Tonnes)	Value (In US \$ 1000)	Quantity (In Tonnes)	Value (In US \$ 1000)
2009	494,044	411,999	459,217	391,627
2010	458,514	661,043	440,068	601,282
2011	555,248	668,334	559,053	669,620
2012	104,089	166,268	128,917	540,502
2013	569,604	647,265	566,357	714,183

Source: ITC Geneva

Production Data (in Tonnes)						
Year	2008	2009	2010	2011	2012	Total
Dried Chillies	3,123,443.07	3,035,148.07	3,053,544.87	3,244,251.00	3,352,163.00	15,808,550.01
Dried Garlic	22,790,482.80	22,033,858.50	22,541,421.14	23,710,768.21	24,836,877.00	115,913,407.70
Dried Ginger	1,596,625.00	1,643,678.25	1,692,234.62	2,034,429.00	2,095,056.00	9,062,022.87

Source: FAOSTAT

### Relevance and Recommendation

Codex standards for chilli peppers (CODEX STAN 307-2011) and fresh ginger (CODEX STAN 218-1999) have been developed under Codex Committee on Fresh Fruits and Vegetables (CCFFV) whereas CCFFV has approved the new work on fresh garlic. In the existing Codex standards, the commodities subjected for industrial food processing are excluded. Standards for dried or dehydrated forms of chillies, garlic and ginger have not been so far taken up. It is to be clarified whether Dried or dehydrated forms of chilli, garlic and ginger will be considered as processed vegetables for setting standards under CCPFV or as a spice under CCSCH.

However, dried or dehydrated forms of chilli, garlic and ginger are classified as spice in the lists of ISO, ASTA and ESA. The export rejections of dried chilli, dried garlic and dried ginger products by EU are grouped under the category Spices and herbs according to the Rapid Alert System for Food and Feed (RASFF). Hence, it is essential to evolve harmonized Codex standards for Dried or dehydrated forms of chilli, garlic and ginger under the concerned Codex Committee.

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