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CODEX COMMITTEE ON SPICES AND CULINARY HERBS
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PROPOSAL FOR NEW WORK ON CODEX STANDARD FOR DRIED OR DEHYDRATED CHILLI
(*Capsicum annuum* L. and *Capsicum frutescens* L.) AND PAPRIKA (*Capsicum annuum* L.)
(Jointly Submitted by India and Argentina)

Introduction

Chilli and paprika, the most consumed spices in the world, belong to the genus *Capsicum* under *Solanaceae* family. Chilli is said to be originated in South America and it is widely grown in the tropical and sub-tropical regions of the World. *Capsicum annuum*, *C. frutescens*, *C. chinense*, *C. baccatum* and *C. pubescens* are the important species grown and used for human consumption. Most commercially cultivated cultivars of Chilli and paprika in the world are *Capsicum annuum* L. and *Capsicum frutescens* L. Commercially important part is the fruit.

Capsicum fruits have been part of the human diet for at least 1,000 years. They are rich sources of vitamin C (ascorbic acid) and vitamin A. Pungent types of dried chilli, are used as a condiment for seasoning. The dried fruits are ground and used as an ingredient in curry powder. The pungency is mainly due to the presence of chemical compounds collectively called capsaicinoids. Its extract, capsaicin is used to impart pungency in food.

Paprika has high colour and very less pungency, and is used in ground form in food applications. They are grown and traded for the market importance for their colouring pigments present in them. The usage of natural colours in food is beneficial in terms of consumer health when compared to synthetic food colours.

The purpose of the work is to develop a world-wide standard for dried or dehydrated chilli and paprika by considering their identity and quality characteristics in view of international trade.

1. Purpose and scope of the standard

The scope of this work is to develop worldwide standard for:

- a) Dried or dehydrated chilli obtained by drying the fruits of *Capsicum annuum* L. or *Capsicum frutescens* L. of *Solanaceae* family presented in whole, cracked, crushed, ground or powdered forms to consumers after appropriate processing.
- b) Dried or dehydrated paprika [*Capsicum annuum* L.] of the *Solanaceae* family to be supplied as ground paprika to consumers after appropriate processing.

The purpose of the standard is to consider the identity and quality characteristics of chilli as whole, cracked, crushed, ground or powdered and as ground paprika, in the framework of international trade.

2. Relevance and timeliness

Chilli and paprika are grown in all five continents, although the main producers are India and China, which account for approximately 50% of global output.

Chilli is an important commodity widely used in food. It is one of the oldest traded commodities in the world. India, China, Peru etc. are the pioneers in the supply of Chilli to the world market. Major importers of chilli 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. The countries with demand for paprika are mainly in the American and European continents, accounting for 66% of global imports, led by the United States, Malaysia, Spain, Germany, Japan, Sri Lanka and Mexico. The globalization of the economy, the increase in migratory flows and international tourism, and the growth of world food trade have increased the trade in spices. The ethnic consumption has not only facilitated trade in spices that accompany traditional dishes but also has boosted trade.

In view of the increased production and global trade, there is a need for an internationally harmonized standard for dried or dehydrated chilli and Paprika. The global demand for chilli and paprika is increasing continuously.

The proposed standard would deal with all quality aspects for dried chilli and paprika including wholesomeness, hygiene aspects, moisture content, size, ash content, pungency, colour value and foreign matter. The standard, thereby provides a frame of reference agreed by worldwide consensus among countries which produce market and consume this commodity.

Moreover, the development of a Codex standard for dried or dehydrated chilli in whole, cracked, crushed, ground or powdered forms and dried or dehydrated paprika in ground form will help to protect consumer health and to promote fair trade practices in accordance with current international agreements.

3. Main aspects to be covered

The main aspects of the product to be covered in the standard are the minimum quality and safety requirements to protect consumer's health and to ensure fair practices in food trade. The standard will therefore include:

- Product Definition - Defining the product as "dry and/or dehydrated, whole or ground Chilli and ground Paprika including reference to the genus and the species and/or varietal types if necessary.
- Styles - Listing/describing the different forms of presentation including sizes of whole, pieces and/or powder in chilli and powder in paprika tolerances allowed.
- Classes/ Quality Criteria - Including provisions for colour, pungency, moisture content, ash content, foreign matter and classification of defectives vis-à-vis lot acceptance based on the defects allowed.
- Quality tolerances.
- Provisions for the labelling and marking of the product in accordance with the *General Standard for the Labelling of Pre-packaged Foods*.
- Provisions on contaminants that refer to the Codex General Standard for Contaminants and Toxins in Food and Feed.
- Hygiene provisions that refer to the Recommended International Code of Practice – General Principles of Food Hygiene.
- Provisions for pesticides residues, labelling and packaging with reference to pre-existing Codex documents.
- References to Methods of Analysis and Sampling.

4. Assessment against the criteria for the establishment of work priorities

General Criterion

Consumer protection from the point of view of health, food safety, ensuring fair practices in the food trade and taking into account the identified needs of developing countries.

The proposed new standard will meet this criterion by:

- Promoting consumer protection and prevention of fraudulent practices.
- Providing greater assurance of the quality of the product to meet consumer needs and minimum requirements of food safety.
- Arriving at levels of standardization based on the properties of different varieties to meet industrial and consumer needs with exactness and credibility

The development of the standard would be beneficial to many countries in general and more particular in the case of developing countries.

Criteria Applicable to Commodities

a). Volume of production and consumption in individual countries and volume and pattern of trade between countries:

The worldwide production of chilli including paprika accounts to nearly 3,352,160 tonnes from 1,989,660 hectares of land during 2012 (FAOSTAT) with more than 30% growth in a decade span and it is on the increase. India, China, Peru, Bangladesh, Pakistan, Thailand, Myanmar, Ghana, Ethiopia, etc. are the major Chilli producing countries in the World. India, China, Peru, Spain, Mexico, Germany, Tunisia, Netherlands, etc. are the major chilli exporting countries in the world. United States of America, Malaysia, Spain, Sri

Lanka, Germany, Japan, Mexico, Republic of Korea, United Kingdom, Thailand, Bangladesh, etc. are the major importers of Chilli in the world. Demand for chilli including paprika is bound to go up in different national and international markets.

Year	Quantity (in Metric Tonnes)	Area harvested (in hectare)
2008	3,123,440	1,918,840
2009	3,035,150	2,035,260
2010	3,053,540	1,974,850
2011	3,244,250	1,976,350
2012	3,352,160	1,989,660

Source: FAOSTAT

YEAR	EXPORTS		IMPORTS	
	Quantity (in Metric Tonnes)	Value (1000 \$)	Quantity (in Metric Tonnes)	Value (1000 \$)
2007	503,182	856,838	523,102	912,456
2008	510,566	957,952	521,479	1,007,030
2009	532,418	933,670	556,037	970,186
2010	533,970	983,465	548,420	1,053,140
2011	536,163	1,317,220	546,853	1,308,300

Source: FAOSTAT

S.No	Country	Quantity (in Metric Tonnes)
1	India	1,299,940
2	China	290,000
3	Peru	175,000
4	Bangladesh	172,000
5	Pakistan	150,000
6	Thailand	145,000
7	Myanmar	128,000
8	Ghana	100,000
9	Ethiopia	100,000
10	Vietnam	93,000
11	Benin	67,760
12	Egypt	65,000
13	Nigeria	62,000
14	Mexico	60,000
15	Romania	48,500

Source: FAOSTAT

S.No	Country	Quantity (in Metric Tonnes)	Value in 1000 \$
1	India	260,485	497,052
2	China	98,479	282,628
3	Peru	48,471	131,820
4	Spain	34,879	115,589
5	Mexico	11,007	34,975
6	Germany	5,480	34,410
7	Tunisia	17,451	29,255
8	Netherlands	3,954	17,611
9	United States of America	4,802	15,338
10	France	1,386	12,012
11	Hungary	2,342	11,312
12	Republic of Korea	2,098	10,387
13	Chile	1,650	9,689
14	Serbia	2,153	9,576
15	Belgium	2,130	9,417

Source: FAOSTAT

S.No	Country	Import (in Metric Tonnes)	Value in 1000 \$
1	United States of America	109,937	278,490
2	Malaysia	54,296	135,581
3	Spain	38,141	95,141
4	Sri Lanka	42,782	82,523
5	Germany	20,228	76,416
6	Japan	12,252	60,133
7	Mexico	24,693	55,196
8	Republic of Korea	16,309	44,833
9	United Kingdom	8,723	35,646
10	Thailand	36,970	25,059
11	Netherlands	9,819	24,179
12	Canada	6,308	23,062
13	Bangladesh	13,177	21,866
14	Indonesia	19,988	18,186
15	France	4,054	17,787

Source: FAOSTAT

b).Diversification of national legislations and resultant or potential impediments to international trade:

The import of dried chilli including paprika take place for many applications and dried chilli undergoes various operations such as grinding, cracking and powdering and dried paprika as ground based on specific objectives. Hence the trade in dried chilli including paprika takes shape based on applications and customer requirement. However trade in chilli and paprika is based on producing countries and importing country's mutually agreed conditions in terms of grade and specifications.

The ISO has given specifications for dried chilli and capsicums, whole or ground (powdered) (ISO 972:1997). Producing countries viz. India (IS 2322: 2010), Thailand (TAS 3001:2010), Malaysia etc. have developed their own quality specifications for dried chillies. The Regional standards viz., *CRS 35: 2010 - Specification for spices and sauces* implemented by CARICOM Regional Organization for Standards and Quality are associated with the standards for chilli. The trade associations viz American Spice Trade Association (ASTA) has developed ASTA's Cleanliness Specification for spices, seeds and herbs including dried chillies for imports into United States of America. The European Spice Association has brought out Quality Minima Document of ESA for spices including dried chillies.

There exists an international standard for chili peppers as well as work undertaken by other organizations [International Standard ISO/FDIS 7540 Ground paprika (*Capsicum annum* L.)], a Codex standard is considered necessary and timely in order to integrate criteria into a single internationally acceptable standard. This would reduce possible barriers to trade and would provide a comprehensive legal framework stipulating the minimum internationally acceptable requirements for paprika.

Hence, it would be preferred that the trade in dried or dehydrated chilli / Paprika are carried under an International criteria based on Codex Standard.

c) International or regional market potential:

In the international exchange of spices, the first place is taken by peppers, followed by mustard and the complex *Capsicum*, which includes paprika and chili, with a 4% annual growth rate. (Global trade in - 090420 NCM 2011 and 090421/090422 NCM 2012 - Fruits of the *Capsicum* or *Pepper*, dried, crushed or ground, as of 2008: 860 million dollars/year and a 4% annual increase. Source: <http://www.smartexport.com>.)

In world exports, the complex *Capsicum* has an average annual growth rate of 5% between 2009-2013, accounting for an average of 1.121 billion dollars a year. (Global exports of - 090420 NCM 2011 and 090421/090422 NCM 2012 - Fruits of the *Capsicum* or *Pimentón* genera, dried, crushed or ground. Source: Comtrade).

On the development of trade, the following data are observed¹:

Table 1: Major countries importing fruits of the *Capsicum* or *Pimenta* genera, dried, crushed or ground - In USD millions (Source: <http://comtrade.un.org/data/>)

¹ COMTRADE is a statistical basis consisting of the contributions that each country makes. To date many countries have not updated their 2014 information, therefore data are updated as of 2013, which is the last available year that is complete.

Ranking	Importing Country	2009	2010	2011	2012	2013	2009 / 2013 Average	Straight-through Rate
1	United States	202	224	278	305	287	259	42%
2	Malaysia	95	123	136	101	85	108	-10%
3	Spain	68	63	95	85	73	77	8%
4	Germany	63	65	79	66	71	69	12%
5	Japan	46	50	60	56	61	55	31%
6	Sri Lanka	43	44	82	38	49	51	15%
7	Mexico	63	55	55	27	45	49	-29%
	Grand total	915	1,023	1,278	1,151	1,106	1,094	21%

Table 2: Major countries exporting fruits of the *Capsicum* or *Pimenta* genera, dried, crushed or ground (Source: [http:// comtrade.un.org/data/](http://comtrade.un.org/data/))

Ranking	Exporting Country	2009	2010	2011	2012	2013	2009 / 2013 Addition	2009 / 2013 Average	Straight-through Rate
1	India	250	348	496	532	349	1,976	395	40%
2	China	213	191	283	264	249	1,200	240	17%
3	Spain	105	90	116	130	120	562	112	14%
4	Peru	103	97	131	111	91	534	107	-12%
5	Germany	22	28	39	33	40	161	32	78%
6	Mexico	15	23	35	22	46	141	28	195%
	Grand total	928	973	1,308	1,286	1,114	5,608	1,122	20%

Table 3: Yields of countries exporting fruits of the *Capsicum* or *Pimentón* genera, dried, crushed or ground - In USD millions (Source: <http://www.smartexport.com>)

Exporting Country	2009/2013 Average	Share in Total Exports	Average Annual Growth Rate	Straight-through Growth Rate
Grand total	1,122	100%	5%	20%
India	395	35%	9%	40%
China	240	21%	4%	17%
Spain	112	10%	3%	14%

Exports of capsicum for paprika and paprika correspond to subheading 09.04.2 "Fruits of the genus *Capsicum* dried, crushed or ground" of the 2011 Mercosur Common Nomenclature and subheadings 09.04.21 "- Dried, not crushed or ground", 09.04.22 "Crushed or ground" of the 2012 Mercosur Common Nomenclature.

As illustrated in the above tables, there has been a remarkable increase in the international trade for chilli and paprika in the recent years.

d) Amenability of commodity to standardization:

The characteristics of dried or dehydrated chilli and paprika from its cultivation to harvest, the characteristics of the fruit, cultivar varieties, composition, quality and packaging all the parameters lend adequate for conducive to the establishment of an appropriate standard for the commodity. There are existing standards in different countries as well as ISO, which indicates amenability to standardization through harmonization.

e) Coverage of the main consumer protection and trade issues by existing or proposed general standards:

There is no general standard specifically covering dried or dehydrated chilli or dried ground paprika. The new work will strengthen consumer protection and will facilitate trade in chillies and paprika by establishing an internationally agreed and recognized quality standard.

f) Number of commodities which would need separate standards including whether raw, semi processed or processed.

This standard will be a general standard for dried or dehydrated chilli and paprika to cover the relevant aspects concerned. But, it will include all the different forms of dried or dehydrated chilli such as whole, cracked, crushed, ground or powdered and ground form for paprika.

g) Work already undertaken by other international organization in this field and/or suggested by the relevant international intergovernmental bodies

The International organization for Standardization (ISO) has dealt with the standards for dried chilli (ISO 972: 1997). There are national standards for paprika and also the International Standard ISO/FDIS 7540 Ground Paprika (*Capsicum annum* L.). The existing standards could be taken into consideration as a step process to develop Codex Standards for dried or dehydrated chilli and ground paprika.

"The UNECE Standards FFV-61 concerning the marketing and commercial quality control of Chilli Peppers (fresh)" could also be taken into consideration.

5. Relevance to the codex strategic objectives

This proposal is consistent with the Strategic Plan of the Codex Alimentarius Commission 2014-2019, in particular strategic objectives 1.1, 1.3, 2.3 and 3.1.

6. Information on the relation between the proposal and other existing Codex documents.

The work will take into consideration:

- *Standard for Chilli Peppers* (CODEX STAN 307-2011), which deals with fresh chilli.
- *General Principles of Food Hygiene* (CAC/RCP 1-1969); *General Standard for Labelling of Pre Packaged Foods* (CODEX STAN 1-1985); *Code of Hygienic Practice for Spices and Dried Aromatic plants* (CAC/RCP 42-1995); *Methods of Analysis and Sampling* (CODEX STAN 234-1999); *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CAC/GL 21-1997); Maximum Residue Limits for pesticides adopted by Codex for 'Spices'.

7. Identification of any requirements for and availability of expert scientific advice

No expert scientific advice is foreseen at this stage. Published research documents by international bodies will be referred in the process of preparing the standard, if found necessary.

8. Identification of any need for technical input to the standard from external bodies so that this can be planned for

ISO standards can be used as a step process to frame the codex standard for dried or dehydrated chilli and paprika.

The technical inputs from ASTA, ESA, ISO and UNECE will be welcomed as they have already done work related to the subject.

9. Proposed Time Schedule

The following tentative time schedule is proposed, subject to the decisions taken during the Second Session of Codex Committee on Spices and Culinary Herbs:

DATE	ADVANCE AND PROCEDURES
2 nd CCSCCH	Consideration of new work by the 2 nd session of CCSCCH
July 2016	Critical review of proposal by CCEXEC; Approval of new work proposals by the Commission
3 rd CCSCCH	Consideration at Step 3 by the 3 rd CCSCCH Approval at Step 3.
July 2017	Adoption at Step 5 by CAC
4 th CCSCCH	Consideration at Step 6 by the 4 th session of CCSCCH
July 2019	Adoption at Step 8 by the CAC