codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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Agenda Item 8

CX/FO 05/19/8

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FATS AND OILS
Nineteenth Session
London, United Kingdom, 21– 25 February 2005

Proposed New Work
Proposed Amendment to the Codex Standard for Named Vegetable Oil
CX-STAN 210

Prepared by the United States of America

United States of America requests that the CCFO initiate an amendment to the Codex Standard for Named Vegetable Oil to include standards for two new named vegetable oils; Low Linolenic Soyabean Oil and Mid Oleic Soyabean Oil.

Discussion:
In the United States most of the oil consumed for edible purposes is the soybean oil. The oil produced from the new varieties of soybean is expected to find ready acceptance by consumers and processors of soybean oil. In due time, it is expected that the Low Liolenic Acid Soybean Oil and Mid-oleic Acid Soybean should gain a fair market share away from the traditional soybean oil.

It has been shown that the consumers prefer oils that contain mono-unstaurated fatty acids such as oleic acid. The Mid-oleic Acid will satisfy some of the consumer demand for oils high in mono-unsaturated acids. Furthermore, the Mid-oleic Acid Soybean Oil and Low Linolenic Acid Soybean are much more stable than the traditional soybean oil. The increased stability of these oils increases the possibility of their use in place of the partially hydrogenated soybean oil. These oils will meet market needs in the snack food and food service industries which require frying oil with good oxidative and flavor stability without the need for the oil to be hydrogenated.

2. Description

Soya bean oil – Mid-oleic acid (Mid-oleic soyabean oil) is derived from Soya beans (seeds of *Glycine max* (L)Merr.) that contain significantly more oleic acid that the traditional varieties of soyabeans.

Soya bean oil – Low Linolenic Acid (low-linolenic acid Soya bean oil) is derived from Soya beans (seeds of *Glycine max* (L)Merr.) that contain significantly lower amounts of linolenic acid as compared to the traditional varieties of soyabeans.

3. Essential composition and quality factors
3.1 GLC ranges of fatty acid composition (expressed as % of total fatty acids) (for Table 1)

FATTY ACID COMPOSITION (Table 1 of the standard)

MID-OLEIC SOYABEAN OIL- GLC DATA - % TOTAL FATTY ACIDS

FATTY ACIDS			
Caproic Ac.	C6:0		ND
Caprylic Ac.	C8:0		ND
Capric Ac.	C10:0		ND
Lauric Ac.	C12:0		ND-0.1
Myristic Ac.	C14:0		ND-0.2
Palmitic Ac.	C16:0		5.0 -13.5
Palmitoleic Ac.	C16:1		ND-0.2
Margaric Ac.	C17:0		ND-0.1
Heptadecenoic Ac.	C17:1		ND-0.1
Stearic Ac.	C18:0		2.0-5.4
Oleic Ac.	C18:1		45-70
Linoleic Ac.	C18:2		15 -40
Linolenic Ac.	C18:3		0.5-4.5
Arachidic Ac.	C20:0		[missing]
Eicosenoic Ac.	C20:1		ND-0.5
	C20:2		ND-0.1
Behenic Ac.	C22:0		ND-0.7
Erucic Ac.	C22:1		ND-0.3
	C22:2		ND
Lignoceric Ac.	C24:0		ND-0.5
Nervonic Ac.	C24:1		ND

ND: < 0.05

FATTY ACID COMPOSITION (Table 1 of the standard)

LOW LINOLENIC SOYABEAN OIL- GLC DATA - % TOTAL FATTY ACIDS

FATTY ACIDS			
Caproic Ac.	C6:0		ND
Caprylic Ac.	C8:0		ND
Capric Ac.	C10:0		ND
Lauric Ac.	C12:0		ND-0.1
Myristic Ac.	C14:0		ND-0.2
Palmitic Ac.	C16:0		8.0 -13.5
Palmitoleic Ac.	C16:1		ND-0.1
Margaric Ac.	C17:0		ND-0.1
Heptadecenoic Ac.	C17:1		ND-0.1
Stearic Ac.	C18:0		2.0-5.4
Oleic Ac.	C18:1		22-33
Linoleic Ac.	C18:2		48-60
Linolenic Ac.	C18:3		0.5-4.5
Arachidic Ac.	C20:0		DATA missing
Eicosenoic Ac.	C20:1		ND-0.5
	C20:2		ND-0.1
Behenic Ac.	C22:0		ND-0.7
Erucic Ac.	C22:1		ND-0.3
	C22:2		ND
Lignoceric Ac.	C24:0		ND-0.5
Nervonic Ac.	C24:1		ND

ND: < 0.05

ANNEX TO STANDARD

2. Composition characteristics

No particular characteristics to report.

3. (For Table 2)

	Chemical and physical characteristics of Low-Linolenic SoyabeanOil	Mid-Oleic Soyabean Oil
Relative Density	0.919 - 0.922	0.914 – 0.919
Refractive Index	1.465 – 1.470	1.462 – 1.465
Saponification Value	186 – 198	184 - 190
Iodine Value	112 – 135	88 - 120
Unsaponifiables	</= 15	</= 15

4. Identity characteristics (for Tables 3 and 4)

For Table 3 – Levels of desmethylesterols in crude Low Linolenic Acid Soyabean Oil and Mid-Oleic Acid Soyabean Oil (% of total sterols)

	Low-Linolenic	Mid-Oleic
Cholesterol	0.2-0.5	0.2-0.4
Brassicasterol	ND-0.24	ND-0.2
Campesterol	22.4-25.7	22.2-24.1
Stigmasterol	19.6-20.4	20.0-25.2
Beta-sitosterol	47.5-51.8	44.1-45.4
Delta-5-avenasterol	0.6-1.6	1.8-2.0
Delta-7-stigmastenol	0.3-1.9	1.3-1.9
Delta-7-avenasterol	0.2-1.1	0.3-0.5
Other sterols	2.2-5.8	2.2-3.8
Total**(mg/kg**)	1967-2997	1569-2508

For Table 4 – Levels of tocopherols and tocotrienols in crude Low Linolenic Acid Soyabean Oil and Mid-Oleic Acid Soyabean Oil from authentic samples (mg/kg)[

	Low-Linolenic	Mid-Oleic
Alpha-tocopherol	84-138	139-168
Beta-tocopherol	ND-30	ND-30
Gamma-tocopherol	356-424	271-324
Delta- tocopherol	262-392	266-303
Alpha-tocotrienol	ND-45	ND-45
Gamma-tocotrienol	ND-85	ND-85
Delta-tocotrienol	ND	ND
Total (mg/kg)	740-945	676-778