

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
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ORGANIZATION



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Agenda Item 8

CX/MAS 04/9-Add.2

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON METHODS OF ANALYSIS AND SAMPLING

Twenty-fifth Session

Budapest, Hungary, 8 – 12 March 2004

ENDORSEMENT OF METHODS OF ANALYSIS PROVISIONS IN CODEX STANDARDS

GOVERNMENT COMMENTS (CANADA)

CANADA

Background

Canada sent comments to the Commission in document CAC/LIM 3, Part A: Matters for Adoption by the 26th Session of the Codex Alimentarius Commission (CAC). Unfortunately, these comments were not addressed at the CAC. Consequently the methods of analysis remain as they are now in Appendix II of ALINORM 03/39A.

CCMAS may recall that the Second Session of the Ad Hoc Intergovernmental Codex Task Force on Fruit and Vegetable Juices (the Task Force) forwarded methods of analysis for fruit and vegetable juices and nectars to CCMAS for endorsement. In this respect, in Matters of Interest Arising From Other Committees, CCMAS following their 24th Session, reminded the Task Force at its 3rd Session that the methods proposed by the Codex commodity committee for endorsement should correspond to provisions in Codex standards. In order to overcome this problem and recognizing that a single method cannot be used to determine the overall authenticity, composition, and quality and that a combination of methods may be used, the Task Force added the following wording to Section 3 - Essential Composition and Quality Factors.

Section 3.3 - Authenticity

Authenticity is the maintenance of the product's essential physical, chemical, organoleptical, and nutritional characteristics of the fruit(s) from which it comes.

Section 3.4 - Verification of Composition, Quality, and Authenticity

Fruit juices and nectars should be subject to testing for authenticity, composition, and quality where applicable and where required. The analytical methods used should be those found in

Section 8, Methods of Analysis and Sampling.

The Task Force noted that the question of establishing specific values for fruit juices corresponding to each method of analysis was complicated and required a new approach. The Task Force was of the view that previous fruit juice standards applied to a very small number of juices from specific fruits and that the current General Standard being developed covered a much wider range of juices, their mixtures and other fruit juice products and that a number of different methods were used internationally, therefore it was not possible to agree on the specific values at this stage. The Task Force concluded that the approach used by this Task Force should be to develop and only then agree upon specific values for all the varieties of fruit juices and other products covered by the General Standard on Fruit Juices and Nectars using the proposed methodology (ALINORM 03/ 39A, paras. 69- 71 and 76).

CCMAS should be aware that the fourth session of the Task Force in September 2004 is the last session scheduled for the Task Force and that it is very important that the methods of analysis be endorsed by

CCMAS. In order to facilitate the endorsement process, Canada would like to reiterate its comments made in CAC/26 LIM3 as follows. (These could be included as an Addendum to CX/MAS 04/9 or as a CRD.)

I. Proposed Draft Codex General Standard for Fruit Juices and Nectars at Step 5/8 (paras. 86-87 and Appendix II)

Canada would like to provide missing data to the Proposed Draft Codex General Standard for Fruit Juices and Nectars, table in Section 8: Methods of Analysis and Sampling (Appendix II to ALINORM 03/39A).

Canada chaired the Drafting Group on Methods of Analysis and Sampling for the Proposed Draft Codex General Standard for Fruit Juices and Nectars. At its last session, the Task Force endorsed the conclusions and recommendations of the Drafting Group with regard to the table in Section 8: Methods of Analysis and Sampling. It was agreed that Canada, as chair of the drafting group, would include at a later date specific information missing in the table. Attached is the table provided by Canada in its comments to CAC/26 LIM3. The differences with the table on methods of analysis appearing in Appendix II to ALINORM 03/39A include the inclusion of cellobiose, the correction of the methods of analysis for essential oils - AOAC 944.06 & IFU Method No 45a instead of AOAC 968.20 & IFU 45b.

A second attached table dated March 2004 includes more detailed information on specific provisions and commodity where applicable.

Quality Method or Authenticity Method	Provision in the Standard	ANALYTE	PRINCIPLE	METHOD	CODEX TYPE
QM	3.4	Acetic acid	Enzymatic determination	EN 12632 IFU Method No66 (1996)	II
QM	3.4	Alcohol (ethanol)	Enzymatic determination	IFU Method No52 (1983/1996)	II
AM	3.4	Anthocyanins	HPLC	IFU Method No71 (1998)	I
QM	3.4, 4.2	Ascorbic acid-L	HPLC	IFU Method No17a (1995)	II
QM	3.4, 4.2	Ascorbic-L	Indophenol method	AOAC 967.21 IFU Method No 17	III
AM	3.4	Ash in fruit products	Gravimetry	AOAC 940.26 (JAOAC 23,314 (1940)) EN1135(1994) IFU Method No9 (1989)	I
AM	3.4	Beet sugar in fruit juices	Deuterium NMR	AOAC 995.17 JAOAC 79, 917 (1996)	I
AM	3.4	Benzoic acid as a marker in orange juice	HPLC	AOAC 994.11 JAOAC 78, 80 (1995)	II
QM	4.3,4.8	Carbon dioxide	Titrimetry (back-titration after precipitation)	IFU Method No 42 (1976)	IV
QM	3.4	C ¹³ /C ¹² ratio of ethanol derived from fruit juices	Stable isotope mass spectrometry	JAOAC, 79, No 1, 1996, 62-72	IV
AM	3.4	Carbon stable isotope ratio of apple juice	Stable isotope mass spectrometry	AOAC 981.09 JAOAC 64, 85 (1981)	II
AM	3.4	Carbon stable isotope ratio of orange juice	Stable isotope mass spectrometry	AOAC 982.21 JAOAC 65, 608 (1982) J.Agric.Food Chem, 29, 803-804 (1981)	II
AM	3.4	Carotenoid, Total/individual groups	Precipitation/fractionation	EN 12136 (1997) IFU Method No59 (1991)	I
QM/AM	3.4	Cellobiose	Capillary Gas Chromatography	IFU Recommendation No.4 October 2000	IV

Quality Method or Authenticity Method	Provision in the Standard	ANALYTE	PRINCIPLE	METHOD	CODEX TYPE
QM	3.4	Centrifugable pulp	Centrifugation/% value	EN12134 IFU Method No60 (1991/1998)	I
QM	3.4	Chloride (expressed as sodium chloride)	Electrochemical titrimetry	EN12133 IFU Method No 37 (1968)	II
QM	3.4	Chloride in vegetable juice	Titration	AOAC 971.27 (Codex general method)	III
AM	3.1.2 c), 3.4, 4.1	Citric acid	HPLC	AOAC 986.13, JAOAC 69, 594 (1986), JAOAC 77, 411 (1994)	
AM	3.1.2 c), 3.4, 4.1	Citric acid	Enzymatic determination	EN 1137 IFU Method No22 (1985)	II
QM	3.4	Essential oils	Steam distillation	AOAC 944.06 IFU Method No 45a	I
QM	3.4	Fermentability	Microbiological method	IFU Method No 18 (1974)	I
AM	3.4	Formol number	Potentiometric titration	EN 1133 (1994) IFU Method No30 (1984)	I
AM	3.4	Free amino acids	Chromatography	EN 12742 IFU Method No57 (1989)	II
QM	3.4	Fumaric acid	HPLC	IFU Method No72 (1998)	II
AM	3.1.2 a), b); 3.4	Glucose, fructose, sorbitol	HPLC	EN 12630 IFU Method No67 (1996)	III
AM	3.1.2 a), b); 3.4	Glucose-D fructose-D	Enzymatic determination	EN 1140 IFU Method No55 (1985)	II
QM	3.4	Gluconic acid	Enzymatic determination	IFU Method No 76 (2001)	II
QM	3.4	Glycerol	Enzymatic determination	IFU Method No77 (2001)	II
AM	3.4	Hesperidin and naringin	HPLC	EN12148 (1996) IFU Method No 58 (1991)	II

Quality Method or Authenticity Method	Provision in the Standard	ANALYTE	PRINCIPLE	METHOD	CODEX TYPE
AM	3.1.2 a), b); 3.4	HFCS & HIS in apple juice	CAP GC Method	JAOAC 84, 486 (2001)	I
AM	3.4	Hydroxymethylfurfural	HPLC	IFU Method No69 (1996)	II
AM	3.4	Isocitric acid-D	Enzymatic determination	EN 1139 IFU Method No54 (1984)	II
QM	3.4	Lactic acid- D and L	Enzymatic determination	EN 12631 (1999) IFU Method No53 (1983/1996)	II
AM	3.4,4.1	Malic acid (L-malic/total malic acid ratio in apple juice)	Enzymatic and HPLC	AOAC 993.05, JAOAC 69, 594 (1986), JAOAC 77, 411 (1994)	III
AM	3.4	Malic acid-D	Enzymatic determination	EN12138 IFU Method No 64 (1995)	II
AM	3.4	Malic acid-D in apple juice	HPLC	AOAC 995.06	III
AM	3.4, 4.1	Malic acid-L	Enzymatic determination	EN1138 (1994) IFU Method No21 (1985)	II
AM	3.4	Naringin and neohesperidin in orange juice	HPLC	AOAC 999.05 JAOAC, Vol. 83, No.5 (2000), pp1155-1165	I
AM	3.4, 4.6	Pectin	Precipitation/photometry	IFU Method No26 (1964/1996)	I
QM	3.4	pH-value	Potentiometry	EN 1132(1994) IFU Method No11 (1968/1989)	I
AM	3.4	Phosphor/Phosphate	Photometric determination	EN1136 (1994) IFU Method No50 (1983)	II
AM	3.4, 4.4	Preservatives in fruit juices	HPLC	IFU Method No 63 (1995)	II
AM	3.4	Proline	photometric determination	EN1141 (1994) IFU Method No49 (1983)	II

Quality Method or Authenticity Method	Provision in the Standard	ANALYTE	PRINCIPLE	METHOD	CODEX TYPE
AM	3.1.2(c), 3.4, 4.1	Quinic, malic & citric in cranberry juice cocktail and apple juice	HPLC	AOAC 986.13 JAOAC 69, 594(1986)	III
QM	3.4	Recoverable oil	Distillation and titration Scott method	AOAC 968.20 IFU Method No 45b	I
QM	3.4	Relative density	Pycnometry	EN1131(1993) IFU Method No 1 (1989) & IFU Method No General sheet (1971)	II
QM	3.4	Relative density	Densitometry	IFU Method No 1A	III
AM	3.4	Sodium, potassium, calcium, magnesium	Atomic Absorption Spectroscopy	EN 1134 (1994) IFU Method No33 (1984)	II
QM	3.1.1, 3.4	Soluble solids	Indirect by refractometry	AOAC 983.17 EN12143 (1996) IFU Method No 8 (1991)	I
AM	3.4	Sorbitol-D	Enzymatic determination	IFU Method No62 (1995)	II
AM	3.4	Stable carbon isotope ratio in the pulp of fruit juices	Stable isotope mass spectrometry	ENV13070 (1998) Analytica Chimica Acta 340 (1997)	II
AM	3.4	Stable carbon isotope ratio of sugars from fruit juices	Stable isotope mass spectrometry	ENV12140 Analytica Chimica Acta.271 (1993)	II
AM	3.4	Stable hydrogen isotope ratio of water from fruit juices	Stable isotope mass spectrometry	ENV12142 (1997)	II
AM	3.4	Stable oxygen isotope ratio in fruit juice water	Stable isotope mass spectrometry	ENV12141(1997)	II
QM	3.4	Starch	Precipitation	AOAC 925.38 IFU Method No73	I

Quality Method or Authenticity Method	Provision in the Standard	ANALYTE	PRINCIPLE	METHOD	CODEX TYPE
AM	3.1.2 a), b), 3.4	Sucrose	Enzymatic determination	EN 12146 (1996) IFU Method No56 (1985/1998)	III
AM	3.1.2 a), b), 3.4	Sucrose	HPLC	EN 12630 IFU Method No67 (1996)	II
AM	3.4	Sugar -beet derived syrups in frozen concentrated orange juice $\delta^{18}\text{O}$ Measurements in Water	Stable isotope mass spectrometry	AOAC 992.09	I
QM	3.4	Sulfates	Precipitation/Gravimetry	EN1142 (1994) IFU Method No36 (1987)	II
QM	4.2,4.8	Sulphur dioxide by modified Powell	Titrimetry after distillation	EN 13196not identical with IFU Method No Method No7A (2000)	I
QM	4.2,4.8	Sulphur dioxide by Optimized Monier Williams	Titrimetry after distillation	AOAC 990.28	I
AM	3.4,4.1	Tartaric acid in grape juice	HPLC	EN 12137(1997) IFU Method No65 (1995)	II
QM	3.4	Titrateable acids, total	Titrimetry	EN 12147 (1995) IFU Method No Method No 3, (1968)	I
QM	3.4	Total dry matter	Gravimetric determination	EN12145(1996) IFU Method No61 (1991)	I
QM	3.4	Total nitrogen	Digestion/titration	EN 12135 (1997) IFU Method No28 (1991)	I
QM	3.4	Total solids	Microwave oven drying/ gravimetric determination	AOAC 985.26	I
QM	3.4	Vitamin C	Microfluorometry	AOAC 967.22	III
QM	3.4	Vitamin C	DNA	CEN /TC275/WG9 N60	II

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Fruit Juices and Nectars	3.4 - Quality	Acetic acid	Enzymatic determination	EN 12632 IFU Method No66 (1996)	II
Fruit Juices and Nectars	3.4-Quality	Alcohol (ethanol)	Enzymatic determination	IFU Method No52 (1983/1996)	II
Fruit Juices and Nectars	3.4-Authenticity	Anthocyanins	HPLC	IFU Method No71 (1998)	I
Fruit Juices and Nectars	3.4- Quality, Food Additive-Antioxidant	4.2-Ascorbic acid-L	HPLC	IFU Method No17a (1995)	II
Fruit Juices and Nectars	3.4-Quality Food Additive-Antioxidant	4.2-Ascorbic-L	Indophenol method	AOAC 967.21 IFU Method No 17	III
Fruit Juices and Nectars	3.4-Authenticity	Ash in fruit products	Gravimetry	AOAC 940.26 (JAOAC 23,314 (1940)) EN1135(1994) IFU Method No9 (1989)	I
Fruit Juices and Nectars	3.4-Authenticity	Beet sugar in fruit juices	Deuterium NMR	AOAC 995.17 JAOAC 79, 917 (1996)	I
Orange juice	3.4-Authenticity	Benzoic acid as a marker in orange juice	HPLC	AOAC 994.11 JAOAC 78, 80 (1995)	II
Fruit Juices and Nectars	4.3-Food Additive-Carbonating Agent 4.8-processing aid-packing gas	Carbon dioxide	Titrimetry (back-titration after precipitation)	IFU Method No 42 (1976)	IV
Fruit Juices and Nectars	3.4-Quality	C ¹³ /C ¹² ratio of ethanol derived from fruit juices	Stable isotope mass spectrometry	JAOAC, 79, No 1, 1996, 62-72	IV

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Apple Juice	3.4-Authenticity	Carbon stable isotope ratio of apple juice	Stable isotope mass spectrometry	AOAC 981.09 JAOAC 64, 85 (1981)	II
Orange Juice	3.4-Authenticity	Carbon stable isotope ratio of orange juice	Stable isotope mass spectrometry	AOAC 982.21 JAOAC 65, 608 (1982) J.Agric.Food Chem, 29, 803-804 (1981)	II
Fruit Juices and Nectars	3.4-Authenticity	Carotenoid, Total/individual groups	Precipitation/fractionation	EN 12136 (1997) IFU Method No59 (1991)	I
Apple Juice	3.4-Authenticity	Cellobiose	Capillary Gas Chromatography	IFU Recommendation No.4 October 2000	IV
Fruit Juices and Nectars	3.4-Authenticity	Centrifugable pulp	Centrifugation/% value	EN12134 IFU Method No60 (1991/1998)	I
Fruit Juices and Nectars	3.4-Quality	Chloride (expressed as sodium chloride)	Electrochemical titrimetry	EN12133 IFU Method No 37 (1968)	II
Vegetable Juice	3.4-Quality	Chloride in vegetable juice	Titration	AOAC 971.27 (Codex general method)	III
Fruit Juices and Nectars	3.1.2 c)-anhydrous citric acid, 3.4-Authenticity 4.1-Food Additive-Acidity regulator	Citric acid	HPLC	AOAC 986.13, JAOAC 69, 594 (1986), JAOAC 77, 411 (1994)	
Fruit Juices and Nectars	3.1.2 c)-anhydrous citric acid, 3.4-Authenticity 4.1-Food Additive-Acidity regulator	Citric acid	Enzymatic determination	EN 1137 IFU Method No22 (1985)	II

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Fruit Juices and Nectars	3.4-Quality	Essential oils	SteAuthenticity distillation	AOAC 944.06 Method No 45a IFU	I
Fruit Juices and Nectars	3.4-Quality	Fermentability	Microbiological method	IFU Method No 18 (1974)	I
Fruit Juices and Nectars	3.4-Authenticity	Formol number	Potentiometric titration	EN 1133 (1994) IFU Method No30 (1984)	I
Fruit Juices and Nectars	3.4-Authenticity	Free Authenticityino acids	Chromatography	EN 12742 IFU Method No57 (1989)	II
Fruit Juices and Nectars	3.4-Quality	Fumaric acid	HPLC	IFU Method No72 (1998)	II
Fruit Juices and Nectars	3.1.2 a)-glucose, fructose, b)glucose, fructose; 3.4-Authenticity	Glucose, fructose, sorbitol	HPLC	EN 12630 IFU Method No67 (1996)	III
Fruit Juices and Nectars	3.1.2 a)-glucose,fructose b)-glucose, fructose; 3.4-Authenticity	Glucose-D fructose-D	Enzymatic determination	EN 1140 IFU Method No55 (1985)	II
Fruit Juices and Nectars	3.4-Quality	Gluconic acid	Enzymatic determination	IFU Method No 76 (2001)	II
Fruit Juices and Nectars	3.4-Quality	Glycerol	Enzymatic determination	IFU Method No77 (2001)	II
Fruit Juices and Nectars	3.4-Authenticity	Hesperidin and naringin	HPLC	EN12148 (1996) IFU Method No 58 (1991)	II

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Apple Juice	3.1.2 a)fructose, b)high fructose corn syrup, 3.4-Authenticity	HFCS & HIS in apple juice	CAP GC Method	JAOAC 84, 486 (2001)	I
Fruit Juices and Nectars	3.4-Authenticity	Hydroxymethylfurfural	HPLC	IFU Method No69 (1996)	II
Fruit Juices and Nectars	3.4-Authenticity	Isocitric acid-D	Enzymatic determination	EN 1139 IFU Method No54 (1984)	II
Fruit Juices and Nectars	3.4-Quality	Lactic acid- D and L	Enzymatic determination	EN 12631 IFU Method No53 (1983/1996)	II
Apple Juice	3.4-Authenticity, 4.1-food additive-acid regulator	Malic acid (L-malic/total malic acid ratio in apple juice)	Enzymatic and HPLC	AOAC 993.05, JAOAC 69, 594 (1986), JAOAC 77, 411 (1994)	III
Fruit Juices and Nectars	3.4-Authenticity	Malic acid-D	Enzymatic determination	EN12138 IFU Method No 64 (1995)	II
Apple Juice	3.4-Authenticity	Malic acid-D in apple juice	HPLC	AOAC 995.06	III
Fruit Juices and Nectars	3.4-Authenticity, 4.1-food additive-acid regulator	Malic acid-L	Enzymatic determination	EN1138 IFU Method No21 (1985)	II
Orange Juice	3.4-Authenticity	Naringin and neohesperidin in orange juice	HPLC	AOAC 999.05 JAOAC, Vol. 83, No.5 (2000), pp1155-1165	I
Fruit Juices and Nectars	3.4-Authenticity 4.6-food additive- stabilizer	Pectin	Precipitation/photometry	IFU Method No26 (1964/1996)	I

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Fruit Juices and Nectars	3.4-Quality	pH-value	Potentiometry	EN 1132(1994) IFU Method No11 (1968/1989)	I
Fruit Juices and Nectars	3.4-Authenticity	Phosphor/Phosphate	Photometric determination	EN1136 (1994) IFU Method No50 (1983)	II
Fruit Juices and Nectars	3.4-Authenticity, food additive-preservative-benzoic acid and sorbic acid	4.4-Preservatives in fruit juices-	HPLC	IFU Method No 63 (1995)	II
Fruit Juices and Nectars	3.4-Authenticity	Proline	photometric determination	EN1141 (1994) IFU Method No49 (1983)	II
Cranberry juice cocktail and apple juice	3.1.2(c)-citric 3.4-Authenticity, food additive-citric	4.1-Quinic, malic & citric in cranberry juice cocktail and apple juice	HPLC	AOAC 986.13 JAOAC 69, 594(1986)	III
Fruit Juices and Nectars	3.4-Quality	Recoverable oil	Distillation and titration Scott method	AOAC 968.20 IFU Method No 45b	I
Fruit Juices and Nectars	3.4-Quality	Relative density	Pycnometry	EN1131(1993) IFU Method No 1 (1989) & IFU Method No General sheet (1971)	II
Fruit Juices and Nectars	3.4-Quality	Relative density	Densitometry	IFU Method No 1A	III
Fruit Juices and Nectars	3.4-Authenticity	Sodium, potassium, calcium, magnesium	Atomic Absorption Spectroscopy	EN 1134 (1994) IFU Method No33 (1984)	II
Fruit Juices and Nectars	3.1.1-soluble solids, Quality	3.4-Soluble solids	Indirect by refractometry	AOAC 983.17 EN12143 (1996) IFU Method No 8 (1991)	I
Fruit Juices and Nectars	3.4-Authenticity	Sorbitol-D	Enzymatic determination	IFU Method No62 (1995)	II

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Fruit Juices and Nectars	3.4-Authenticity	Stable carbon isotope ratio in the pulp of fruit juices	Stable isotope mass spectrometry	ENV13070 (1998) Analytica Chimica Acta 340 (1997)	II
Fruit Juices and Nectars	3.4-Authenticity	Stable carbon isotope ratio of sugars from fruit juices	Stable isotope mass spectrometry	ENV12140 Analytica Chimica Acta.271 (1993)	II
Fruit Juices and Nectars	3.4-Authenticity	Stable hydrogen isotope ratio of water from fruit juices	Stable isotope mass spectrometry	ENV12142 (1997)	II
Fruit Juices and Nectars	3.4-Authenticity	Stable oxygen isotope ratio in fruit juice water	Stable isotope mass spectrometry	ENV12141(1997)	II
Fruit Juices and Nectars	3.4-Quality	Starch	Precipitation	AOAC 925.38 IFU Method No73	I
Fruit Juices and Nectars	3.1.2 a)-sucrose, b)-sucrose, 3.4-Authenticity	Sucrose	Enzymatic determination	EN 12146 (1996) IFU Method No56 (1985/1998)	III
Fruit Juices and Nectars	3.1.2 a)-sucrose, b)-sucrose, 3.4-Authenticity	Sucrose	HPLC	EN 12630 IFU Method No67 (1996)	II
Frozen Concentrated Orange juice	3.4-Authenticity	Sugar -beet derived syrups in frozen concentrated orange juice $\delta^{18}\text{O}$ Measurements in Water	Stable isotope mass spectrometry	AOAC 992.09	I
Fruit Juices and Nectars	3.4-Quality	Sulfates	Precipitation/Gravimetry	EN1142 (1994) IFU Method No36 (1987)	II
Fruit Juices and Nectars	4.2-food additive-sulphites, 4.8-processing aid -sulphur dioxide (only in grape)	Sulphur dioxide by modified Powel	Titrimetry after distillation	EN 13196not identical with IFU Method No Method No7A (2000)	I
Grape juice					

Commodity	Provision in the Standard	Note Provision -analyte	PRINCIPLE	METHOD	Note CODEX TYPE
Fruit Juices and Nectars	4.2-food additive-sulphites,	Sulphur dioxide by Optimized Monier Williams	Titrimetry after distillation	AOAC 990.28	I
Grape juice	4.8-processing aid -sulphur dioxide (only in grape)				
Grape Juice	3.4 -Authenticity	Tartaric acid in grape juice	HPLC	EN 12137(1997) IFU Method No65 (1995)	II
	4.1-food additive-acidity regulator				
Fruit Juices and Nectars	3.4-Quality	Titrateable acids, total	Titrimetry	EN 12147 (1995) IFU Method No Method No 3, (1968)	I
Fruit Juices and Nectars	3.4-Quality	Total dry matter	Gravimetric determination	EN12145(1996) IFU Method No61 (1991)	I
Fruit Juices and Nectars	3.4-Quality	Total nitrogen	Digestion/titration	EN 12135 (1997) IFU Method No28 (1991)	I
Fruit Juices and Nectars	3.4-Quality	Total solids	Microwave oven drying/ gravimetric determination	AOAC 985.26	I
Fruit Juices and Nectars	3.4-Quality	Vitamin C	Microfluorometry	AOAC 967.22	III
Fruit Juices and Nectars	3.4-Quality	Vitamin C	DNA	CEN /TC275/WG9 N60	II