ALINORM 79/14
AGRI/WP.1/GE.4/8

ECONOMIC COMMISSION FOR EUROPE
COMMITTEE ON AGRICULTURAL PROBLEMS
Working Party on Standardization of Perishable Produce

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION
Thirteenth Session
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REPORT OF THE THIRTEENTH SESSION OF THE JOINT ECE/CODEX ALIMENTARIUS GROUP OF EXPERTS ON STANDARDIZATION OF FRUIT JUICES GENEVA, 26-30 JUNE 1978

INTRODUCTION

1. The Joint ECE/codex Alimentarius Group of Experts on Standardization of Fruit Juices held its thirteenth session at Geneva from 26 to 30 June 1978 under the Chairmanship of Professor Dr. W. Pilnik (Netherlands), with Mr. W. Orlowski (Poland) as Vice-chairman.

2. The session was attended by 54 participants including the representatives from Austria; Belgium; Brazil; Chile; Cyprus; Finland; France; Germany, Federal Republic of; India; Israel; Libyan Arab Republic; Mexico; Netherlands; Norway; Philippines; Spain; Switzerland; Thailand; Turkey; United Kingdom; United States of America; Upper Volta and Yugoslavia. Observers attended from South Africa, the International Federation of Fruit Juice Producers (IFFJP), the Association of Official Analytical Chemists (AOAC) and the European Economic Community (EEC). The Group of Experts was informed that no comments had been forthcoming for preparation of document CX/FJ 78/10 and agreed to delete this item from the provisional agenda.

ADOPTION OF AGENDA

3. The Group of Experts adopted the provisional agenda as the agenda for the session.

MATTERS OF INTEREST ARISING FROM REPORTS OF THE CODEX ALIMENTARIUS COMMISSION AND OF VARIOUS CODEX COMMITTEES

4. The Group of Experts was informed that the Twelfth Session of the Commission had reviewed the direction of its programme of work and its priorities. The Group of Experts noted that, as part of their review, the Commission had examined the various activities of its subsidiary bodies on a Committee by Committee basis. To attune its work more to the needs of developing countries, the Commission had introduced in its work criteria a provision to enable the development of standards for products which were produced in increasing amounts and which might have an export potential.

5. The Commission had further introduced into the Steps Procedure for the Elaboration of Standards a specific requirement to provide for consideration of possible economic impact of standards under development.

6. In the case of the work programme of the Group of Experts, the Commission had welcomed the proposal of the Coordinating Committee for Asia that standards should be elaborated for mango juice and nectar and other tropical fruit juices.

7. The Commission had adopted the Draft Standard for Non-pulpy Blackcurrant Nectar Preserved Exclusively by Physical Means at Step 8 and advanced the Proposed Draft Standards for Blackcurrant Juice, Concentrated Blackcurrant Juice and Pulpy Nectars of Certain Small Fruits, all Preserved Exclusively by Physical Means, to Step 6 of the Procedure. The Commission had also adopted amendments to Step 9 standards proposed by the Twelfth Session of the Group of Experts and methods of analysis for certain standards for fruit juices and nectars which had been endorsed by the Codex Committee on Methods of Analysis at its 10th Session (paras 48-67 of ALINORM 78/23).

8. The Secretariat introduced document CX/FJ 78/2 containing matters of interest arising from other Committees. The Group of Experts noted that the Committee on Food " Labelling had confirmed its earlier decision that Commodity Committees might introduce, if they would wish to do so, the quantitative declaration of certain ingredients in a manner appropriate to the product concerned. It was further noted that the Codex Committee on Food Additives had endorsed most of the pending provisions for additives and contaminants in standards under consideration and had also requested comments on a definition of processing aids and on the need to include such provisions in the individual standards. The Group of Experts decided to deal with these matters in conjunction with the relevant standards under review.

Date Marking

9. With regard to date marking, the Group of Experts noted that the Commission, at its Twelfth Session, had adopted the Guidelines on Date Marking of Prepackaged Foods elaborated by the Committee on Food Labelling. The Group of Experts considered the applicability of date marking to products for which it had elaborated standards in the light of the instructions to Commodity Committees contained in Section 5 of the Guidelines.

10. Considerable discussion took place on the need and on the feasibility of date marking products which were processed and packaged in various ways resulting in products with a wide range of different periods of shelf-life, i.e. from frozen concentrates to heat treated products in hermetically sealed containers. Several delegations gave examples of the average shelf life of products packed in cans, lacquered cans, glass and carton containers. However, it was felt that not enough information was available to determine criteria to accommodate the whole range of different products. There was general agreement that the date of expiry would not be suitable because products would have to be removed from the trade even if they could still be consumed and that would result in unnecessary economic losses.

11. A number of delegations reported on regulations or commercial practices in their countries which tended to prefer the date of minimum durability. A few countries expressed themselves in favour of a date of manufacture for the products with a longer shelf-life, which was generally considered to be of about 18 months or more.

12. The Group of Experts in principle agreed with the introduction of date marking into the standards for prepackaged fruit juices, concentrates and nectars intended for direct consumption.

13. The Group of Experts considered that the date of minimum durability, accompanied by appropriate storage instructions where necessary, would probably be the most suitable information for the consumer. Whether the date would consist of the day, month and year, or the month and year, or the year only, would depend on the usually expected keeping quality of the product. The Group of Experts further concluded that more data were needed on the shelf-life of the different products under different climatic and other conditions which would affect the keeping quality of the product.

14. The Group of Experts requested the Secretariat to seek the views of governments, interested international organizations and other Codex Committees on the points raised above.

15. The Group of Experts agreed to submit for government observations the following tentative text of a provision on date marking for inclusion in standards:

"Date Marking and Storage Instructions

1. The date of minimum durability shall be declared in clear and in such a way as to include

   (a) for products with a shelf-life of not more than 18 months the declaration of the month and the year in accordance with Section 2 below;

   (b) for products with a shelf-life of more than 18 months the declaration of the year in accordance with Section 2 below.

2. If the validity of the date depends upon any special conditions for the storage of the product, these conditions shall be declared on the label."

Draft Code of Practice for the Quality of Water Used for the Reconstitution of Fruit Juices from Fruit Juice Concentrate

16. At its Twelfth Session, the Group of Experts had considered the above draft code (CX/FJ 76/11 and Add. I), and had decided to request governments to express their views on the documents, taking into account the general importance of such a code also for other commodities. Comments had been received from Australia only. The Group confirmed its decision taken at its Twelfth Session that the Code should be considered further at a future session and should be regarded in the meantime as a guideline indicating the philosophy of the Group of Experts concerning the quality of the water required for reconstitution of fruit juices. It was decided to append the draft code to the Report of this Session, together with a footnote on the views expressed above (see Appendix V).

DISCUSSION OF DEFINITION OF FRUIT JUICES

17. In discussing the definition of fruit juices, the Group of Experts had before it (i) document CX/FJ 76/13 entitled "Some remarks concerning the definition of fruit juices in Codex Alimentarius Standards" prepared by Professor W. Pilnik, (ii) Government comments on this subject matter contained in documents CX/FJ 78/8 and 78/8 Add. 1, and (iii) the discussion on the definition of fruit juices which took place at the Twelfth Session of the Group of Experts, ALINORM 78/14, paras 15 - 20.

18. During the discussion on this item, it soon became apparent that there were three general questions which needed to be answered: (i) should specific provision be made for enzymatic and heat treatments for the purpose of facilitating the "mechanical process", (ii) did the so-called diffusion or extraction process produce a product which

could be defined as "fruit juice", and (iii) how should fruit products prepared by enzyme liquefaction be handled?

19. In directing their attention to these three questions, the Group of Experts expressed the view that no attempt should be made to apply the brakes to recent advances in fruit juice technology but rather that advantage should be taken of these innovative developments.

20. Some delegates expressed the view that the treatment of fruits with enzymes or heat for the purpose of facilitating the mechanical process of obtaining fruit juice was a universally accepted procedure, and suggested that a footnote qualifying the term "mechanical process" should be added to indicate that enzymatic and heat treatments to facilitate this process were permitted. Other delegates, however, were opposed to the inclusion of such a footnote. The Group of Experts concluded that a further study of what techniques were permitted under the term "mechanical process" and how these should be provided for was needed.

21. In introducing the matter of the diffusion or extraction technique, it was pointed out that this process had been in use for many years, particularly in the preparation of apple juice.

22. The delegation of the United States pointed out that their country did not regard the product obtained by water extraction of any fruit pulp as a fruit juice but that such a product could only be used as a component of a juice for further concentration. The observer from the EEC supported by the observer from the IFFJP and by a number of delegates expressed the view that more information was needed on the extraction technique and suggested the establishment of a small technical working group to study the matter.

23. The Group of Experts concluded that the Scientific and Technical Committee of the IFFJP under the Chairmanship of Prof. Dr. H.J. Bielig should be invited to study the question of the diffusion or extraction technique of preparing fruit juices and what was permitted by the term "mechanical process", and prepare a report with the appropriate recommendations. This Scientific and Technical Committee should meet as soon as possible and present its report to the Codex Secretariat. The Codex Secretariat would then invite Government comments which would be placed before the next meeting of the Group of Experts together with the report of the Scientific and Technical Commission of IFFJP. The following countries and organizations indicated an interest in participating in the Scientific and Technical Committee's discussions - Yugoslavia, United States of America, Israel, Netherlands, Upper Volta, Mexico, Switzerland, EEC and FAO. In addition, it was agreed that Professor Bielig should determine in consultation with the Codex Secretariat the time and place of the meeting and also arrange to invite interested non-members of IFFJP.

24. With regard to the enzymatic liquefaction of fruits, the Chairman, Prof. Dr. W Pilnik, pointed out that he did not wish to suggest in his paper (CX/FJ 76/13) that such products should be called fruit juices. This statement was supported by the observer for the EEC and certain delegates. The delegates of Thailand and India asked, for example, if the enzymatic liquefaction products of banana and guava could not be referred to as juices, what were they to be called?

25. With regard to the enzymatic liquefaction technique the Group of Experts agreed that no further consideration should be given to it at this time.

26. The Group of Experts concluded that the document CX/FJ 76/13 dealing with the definition of fruit juices should be annexed to this report (see Appendix IV).

CONSIDERATION OF DRAFT STANDARD FOR BLACKCURRANT JUICE PRESERVED EXCLUSIVELY BY PHYSICAL MEANS AT STEP 7

27. The Group of Experts had before it the draft standard in Appendix II of ALINORM 78/14, the written comments of governments in CX/FJ 78/3 and AGRI/WP.I/GE.4/CRP 13.

28. The Group of Experts made an editorial amendment to the wording of Section 1. Description so that the second and third sentences were combined to read:

"The juice may be turbid or clarified".

29. Some delegations mentioned the seasonal variation of the soluble solids content of blackcurrant juice due to natural factors, and in this regard 10 per cent was mentioned as a commonly found minimum percentage. Other delegations, and particularly the delegation of Poland, considered the figure of 10 per cent would be too low and suggested 11 per cent minimum for soluble solids.

30. The Group of Experts decided to move the square brackets in Section 2.1, Soluble Solids, and to amend the figure 12 to read 11.

31. The delegation of Switzerland re-stated its previously held view that a product in which the soluble solids were derived to the extent of one-third from fruit and two-thirds from the added sugars was a basic mixture or a syrup for the preparation of a nectar rather than a fruit juice. Several delegations associated themselves with the opinion of the delegation of Switzerland in finding the permitted figure of 200 g/kg for total sugars too high. However, only the delegations of Mexico and Switzerland reserved their position on this figure and the delegation of Switzerland reiterated their reservation on the standard as a whole.

32. With the exception of the delegations of Switzerland and Mexico, most delegations considered that the label declaration of the total quantity of added sugars would give the consumer all the necessary information and would, at the same time, meet the objections concerning the amount of total sugars permitted.

33. Nonetheless the observer of the European Economic Community, while underlining in principle the need to indicate the amount of added sugars, felt that such indication could be optional in cases where the amount of added sugars did not exceed 15g/l in order to allow for variations due to the natural sugar content of blackcurrant juice. The observer of the European Economic Community also felt that the figure of 200 g/kg was too high, without a qualification such as "sweetened" being mandatory on such a product. The observer, while agreeing with the need to indicate the amount of added sugar, felt that an upward tolerance of perhaps 15 per cent should be stated in order to allow for the variations due to natural sugar content of blackcurrant juice.

34. The Group of Experts decided to leave the maximum figure for the total quantity of sugars in Section 2.2 Sugars, at 200 g/kg, but decided to amend 7.1.1 The Name of I the Food, to provide for a label declaration of total sugars. Also, the second sentence referring to Fructose was deleted since the Standard for Fructose had been adopted by the Commission.

35. In answer to a question the Chairman explained that nitrogen and carbon dioxide were included in 3.1 Processing Aids, because those chemicals were required in storage of the juices during manufacture in order to prevent oxidation and the growth of moulds.

36. In its written comments the Government of Australia proposed an increase in the maximum level to 250 mg/kg for Tin in Section 4.6 Contaminants. However, as the toxicological effects of tin were under review by the Joint Expert Committee on Food Additives the Group of Experts decided not to amend this section.

37. Following the discussion on the addition of sugars (see paras 31-34 above) the Group of Experts decided to amend Section 7.1.1 to provide for a label declaration in the following terms:

"7.1.1. The name of the food shall be "blackcurrant juice" except that where sugar or sugars have been added the name of the product shall be "sweetened blackcurrant juice" and the term "contains x per cent of added sugars" shall appear in close proximity to the name where x times 10 represents the amount of sugar or sugars added in grammes per kilogramme of the final product."

38. In answer to a question about the relevance of Section 7.7.2 concerning claims in respect of Vitamin C in this standard, it was pointed out that wherever m the standards ascorbic acid was permitted as an anti-oxidant, the "claim" clause was always introduced. Consequently, the Group decided that as ascorbic acid was not permitted as an additive in this draft standard, the section 7.7.2 would have to be deleted.

39. The observer of the European Economic Community stated that the term "bulk" packaging was not sufficiently precise and that an exact limit should be set. The Group of Experts welcomed this suggestion but decided to await the guidelines on bulk package labelling which was being elaborated by the Codex Committee on Food Labelling.

40. Similarly, following the decision already taken about datemarking (see para 15 above), the Group of Experts decided not to make any changes to this draft standard for the time being.

Status of the Standard

41. The Group of Experts agreed to advance the Draft Standard for Blackcurrant Juice Preserved Exclusively by Physical Means to Step 8 of the Codex Procedure. The standard is contained in Appendix I to this Report.

CONSIDERATION OF DRAFT STANDARD FOR CONCENTRATED BLACKCURRANT JUICE PRESERVED EXCLUSIVELY BY PHYSICAL MEANS AT STEP 7

42. The Group of Experts had before it the draft standard as contained in Appendix III of ALINORM 78/14 and the written comments of governments in CX/FJ 78/4 and AGR IWP. 1/GE. 4/CRP. 14.

43. The Group of Experts amended Section 1. Description in accordance with the amendment to the Draft Standard for Blackcurrant Juice so that the last two sentences were amended and combined to read: "The product may be turbid or clarified".

44. The square brackets were removed from Section 1.1 Process Definition and the figure within the brackets, namely 24, was amended to read 22. Further, the words "exclusive of added sugars" were added to the end of Section 2.1.

45. The delegation of Norway considered it unreasonable to permit contaminants arising from the container during storage to be present in amounts which increased in proportion to the degree of concentration, and considered that the actual amounts found when good manufacturing practices were followed should constitute a basis for setting definite values for concentrated juices. The delegation of Poland was also of the opinion

that the maximum limits of contaminants should be established for the specific concentrated juices but not for the single strength juice obtained after reconstitution. The contention of these delegations was not supported.

46. Section 7.7.2 concerning claims in relation to Vitamin C content was deleted in accordance with the amendment made to the Draft Standard for Blackcurrant Juice.

Status of the Standard

47. The Group of Experts agreed to advance the Draft Standard for Concentrated Blackcurrant Juice Preserved Exclusively by Physical Means to Step 8 of the Codex Procedure. The standard is contained in Appendix II to this Report.

CONSIDERATION OF THE DRAFT STANDARD FOR PULPY NECTARS OF CERTAIN SMALL FRUITS PRESERVED EXCLUSIVELY BY PHYSICAL MEANS AT STEP 7

48. The Group of Experts had before it the above draft standard in Appendix IV to ALINORM 78/14 together with comments from governments contained in document CX/FJ 78/5 and an additional comment from Australia (AGRI/WP.I/GE.4/CRP.15). The delegation of the Federal Republic of Germany proposed to change the minimum fruit content of some nectars covered by this standard. The Group of Experts, however, decided to leave these values unchanged. Considerable discussion took place concerning the maximum limit for sugar in Section 3.2 and the minimum and maximum for soluble solids in 3.4. The delegations of Mexico and Norway were of the opinion that the amount of sugar permitted to be added was too high. The delegation of Mexico was also in favour of setting the upper limit for soluble solids in Section 3.4 at 15 per cent. One delegation proposed to lower the minimum of soluble solids in Section 3.4 to 11 per cent. Two delegations were of the opinion that a limit on the quantity of sugar was not necessary. However, the majority expressed themselves in favour of an upper limit and discussed whether this should be expressed in Section 3.2 or in Section 3.4. It was decided to amend the last sentence of Section 3.4 to clarify the meaning of the wording "calculated as dry matter". The revised text reads as follows: "The total quantity of added sugars or honey, calculated as dry matter, shall not exceed 200 g/kg of the final product." As a consequence of the limit contained in 3.2, the Group of Experts deleted the upper limit for soluble solids in Section 3.4.

49. The Group of Experts further agreed to delete Section 3.5 concerned with apparent viscosity. The observer of the EEC suggested that a provision on natural acidity should be introduced into this standard; no action was taken by the Group of Experts. It was noted that the provision on food additives and contaminants had been endorsed by the Codex Committee on Food Additives. The delegation of Poland proposed to introduce a maximum limit for L-ascorbic acid of 300 mg/kg. The Chairman explained that, in view of the wide variety of fruits covered by the standard, the Codex Committee on Food Additives and the Commission had agreed to the present provision. The observer of the EEC stated that the Community did not favour the addition of acids as the fruits had already a high acid content. The delegation of Finland informed the Group of Experts that this was not correct for some of the fruits, e.g. rose hips.

50. Australia, in its written comments, had suggested that the level for tin be raised to 250 mg/kg. The Group of Experts considered, however, that it was the general trade practice to use glass or lacquered containers for these products which often contained considerable amounts of anthocyanins. The delegation of Norway supported by the observer of the EEC felt that the actual fruit content should be declared. The Group of Experts did not change Section 8.1.2.

51. The delegation of Poland reiterated its view made at previous sessions that Section 8.2.2 should only provide for the declaration under (a) "L-ascorbic acid as antioxidant". The delegation of the United States supported this view. The Group of Experts decided to leave the section unchanged and agreed to amend Sections 8.1.1 and 8.2.1 in accordance with changes made in the other draft standards.

Status of the Standard

52. The Group of Experts decided to advance the Draft Standard for Pulpy Nectars of Certain Small Fruits as contained in Appendix III to this Report to Step 8 of the Procedure.

CONSIDERATION OF THE PROPOSED DRAFT STANDARD FOR NECTARS OF CITRUS FRUIT JUICES PRESERVED EXCLUSIVELY BY PHYSICAL MEANS AT STEP 4

53. The Group of Experts had before it the above standard as contained in Appendix I to CL 1977/37 and government comments in document CX/FJ 78/6 and Add. I and in AGRI/WP.1/GE.1/CRP.16.

54. The proposed draft standard, prepared by the delegation of Spain, was editorially amended to bring it into conformity with other nectar standards elaborated by the Group of Experts.

55. The delegation of Mexico requested to add lime (citrus aurantifolia) to the list of species of citrus fruits and suggested a figure of minimum fruit juice content of 8 per cent because of the high acidity of this fruit. Several delegations were of the opinion that products containing as little as 10 per cent of lemon or 8 per cent of lime juice should not be considered as being nectars but fell into another category. It was explained that these fruit juices could not be used at a much higher level due to the high acid content and for reasons of palatability. The delegation of Switzerland suggested that a specific category be added to the classification scheme for fruit juices and nectars adopted at the last session.

56. The Group of Experts therefore decided to restrict the standard to orange, mandarine, tangerine etc. and grapefruit nectars.

57. Furthermore, the Group of Experts agreed to permit the use of pulp prepared from the endocarp and to increase the minimum content of the fruit ingredient for all fruits specified to 50 per cent. Due to the above changes made in the standard the Group of Experts amended the title to read as follows: Proposed Draft Standard for Nectars of Certain Citrus Fruits preserved exclusively by physical means.

58. The delegation of the Federal Republic of Germany, supported by Norway, proposed to lower the minimum content of soluble solids to 11 per cent. It was agreed to amend the last sentence of Section 3.2, dealing with the addition of mandarine fruit ingredient, to orange nectars to make it clear that the figure of 10 per cent related to the orange fruit ingredient content.

59. The Group of Experts considered whether lemon juice products should fall under the category of mixed fruit juice nectars or if the addition of lemon juice should be permitted in products covered by this standard. It was agreed to introduce a new section which would permit the addition of lemon juice as an acidifying agent.

60. The Group of Experts was reminded that it had established in other nectar standards an upper limit for the addition of sugars of 200 g/kg of the final product. It was

decided to include in Section 3.3 Sugars a similar provision, but to put it into square brackets and to request governments to comment especially on this point.

61. Several delegations drew attention to the absence of a provision which would permit the addition of honey to the product. The Group of Experts noted the written comments of Australia to permit the use of sugars and honey together but decided, however, to introduce the same provision as already contained in other nectar standards in conjunction with the consequential changes in Section 3.9 Organoleptic Properties and in the Labelling section.

62. The Group of Experts considered it appropriate to amend Section 3.7 Volatile Acids to be in conformity with the standards for citrus fruit juices. It was also agreed to introduce a section on essential oils similar to that contained in the citrus fruit juice standards. However, the figures of 0.40 g/kg and 0.4 ml/kg respectively were put into square brackets until government comments confirmed the validity of these figures.

63. The majority of delegations were of the opinion that it was not necessary to provide for the addition of citric or malic acid since the products would be as acidified by the addition of lemon juice. The section on food additives was therefore deleted.

64. Concerning contaminants several delegations requested that the minimum level for tin should be lowered to 150 mg/kg. Delegations from producing countries pointed out that it was not always possible to comply with the proposed lower tin limit and these difficulties had been recognized by the Commission at its eleventh and twelfth sessions. The Group of Experts was informed that the Joint Expert Committee on Food Additives had confirmed its earlier view on tin and advised that limits should be established in accordance with good manufacturing practice for the product concerned. The Group of Experts therefore decided to leave the limit of 250 mg/kg of tin unchanged with the understanding that the figure remained under review. This decision was opposed by the delegations of Austria, Belgium, the Federal Republic of Germany, the Netherlands, Poland and Switzerland.

65. Concerning the limit of 10 mg/kg of sulphur dioxide, the delegation of Mexico reserved its position as they considered for the time being that there should be no sulphur dioxide at all in the product.

66. The Group of Experts considered that water was an essential addition in the manufacture of all nectars whether made from concentrated or single strength juices, and it would be helpful to the consumer if this information were provided. Consequently it was decided to include water in the list of ingredients as follows: "A complete list of ingredients, including added water, shall be declared in descending order of proportion", and that this provision should apply to all standards for nectars.

67. The Group of Experts noted that this would involve the consequential amendment to a number of Step 9 standards. The Group of Experts considered that the declaration of the actual minimum fruit ingredient content instead of the prescribed minimum level would provide better information to the consumer and therefore decided to amend Section 7.1.2 accordingly. The same amendment was to be made in the Standard for Pulpy Nectars of Certain Small Fruits.

68. The Group of Experts instructed the Secretariat to ensure that the sections on Hygiene and Labelling were in conformity with the other standards for nectars.

Status of the Standard

69. The Group of Experts decided to advance the Proposed Draft Standard for Nectars of Certain Citrus Fruits Preserved Exclusively by Physical Means as contained in Appendix VI to this report to Step 5 of the Procedure.

WORKING GROUP ON METHODS OF ANALYSIS

70. The members of the Working Group on Methods of Analysis for Fruit Juices met under the chairmanship of Professor Dr. H. Woidich.

71. The Chairman of the Working Group informed the Group of Experts that the Codex Committee on Methods of Analysis had endorsed, with very few amendments, the methods of analysis submitted by the Working Group for concentrated apple and orange juices, for grape juices and pineapple juice in standards at Step 9 and for the standards for blackcurrant juices and nectars and pulpy nectars of certain small fruits. The Commission at its twelfth session had adopted these methods for the relevant standards (para 321 of ALINORM 78/41).

72. The Chairman further stated that work was being undertaken on methods for the determination of tin and of the water capacity and fill of containers. The Working Group would also commence work on methods of analysis for the other standards under elaboration based on methods already adopted.

73. The Chairman of the Group of Experts expressed the Group's appreciation for the work done by the Working Group, which included also a considerable amount of collaboration testing of methods (the report of the Working Group is contained in Appendix IX to this Report).

CONSIDERATION OF FIRST DRAFTS OF STANDARDS FOR CONCENTRATED PINEAPPLE JUICE PRESERVED EXCLUSIVELY BY PHYSICAL MEANS, FOR FROZEN CONCENTRATED PINEAPPLE JUICE AND FOR CONCENTRATED PINEAPPLE JUICE CHEMICALLY PRESERVED (WITH PRESERVATIVES)

74. The Group of Experts had before it the first drafts of the above standards contained in CX/FJ 78/7. The Chairman thanked the delegations of Thailand and the United States for the documents they had jointly prepared. In considering the above standards the Group of Experts decided that the process of freezing was a physical process and that it would be advisable to merge the two proposed Draft Standards for Pineapple Concentrate Physically Preserved and for Frozen Pineapple Concentrate. The two author countries agreed to redraft these standards accordingly.

75. The Chairman drew the attention of the Group of Experts to the fact that for the first time a draft standard had been submitted for a product which was chemically preserved. The Group of Experts recognized that this was a matter of principle. However, the terms of reference would perfectly permit the Group of Experts to embark on standardization of a chemically preserved product.

76. The delegations of Thailand and the United States informed the Group of Experts that the product was produced and traded in considerable amounts for use as ingredient in mixed fruit drinks and other products where pineapple juice was a characterizing ingredient. The delegation of the United States further explained that the product was usually concentrated to 72 Brix. Products with this high degree of concentration would normally keep well but in pineapple concentrate even at 720 Brix yeasts would cause fermentation and therefore benzoates and sorbates would have to be added.

77. Considerable discussion took place on the proposed end-use of the product. Several delegations, including Poland, the Netherlands, the Federal Republic of

Germany, Belgium, Austria, Norway and Switzerland were of the opinion that the product should not be offered directly to the ultimate consumer but should be limited to use in further processing. It was further mentioned by these delegations that the presence of preservatives would exclude the use of pineapple concentrate chemically preserved from the production of reconstituted juices and of nectars. The delegation of France wished to have a declaration of the destination of the product on the label. The delegation of the United States was opposed to prescribing for which products the pineapple concentrates with preservatives could be used as that should be left to the manufacturer and to the country having jurisdiction over these products.

78. It was further considered whether a standard for a chemically preserved product should be elaborated at all. The Group of Experts decided in the affirmative to avoid the name being monopolized for physically preserved products.

79. It was decided that the two author countries should redraft for the next session the Standard for Concentrated Pineapple Juice with Preservatives in the light of the above discussion and in accordance with the Codex format established for concentrated fruit juices. It was noted that a standard for the product would assist the producer countries, which were mainly developing countries, to promote a product which was already well established on the market.

80. It was agreed that a scope section should contain wording to express that the product was not intended for direct consumption but for use in the manufacture of products where pineapple juice was a characterizing ingredient.

81. The delegation of France enquired as to how the Group of Experts would deal with residues from preservatives if the product were to be used as an ingredient. The Group of Experts requested the Secretariat to prepare a document for the next session dealing with those matters which concerned other Committees such as the Committees on Food Additives and on Food Labelling.

82. In considering the possibility of elaborating standards for chemically preserved concentrated pineapple juice, several delegations were of the opinion that chemically preserved concentrated juices of other fruits (e.g. citrus fruits) were also moving in large amounts in international trade.

83. It was thought that a general provision which could be introduced either as the scope section or in the section dealing with the name of the product of all concentrated fruit juice standards would be appropriate to avoid also for these products the monopolizing of the name of the product by the physically preserved products.

84. It was finally decided to elaborate a general standard for concentrated fruit juices chemically preserved, excluding those products for which an individual standard was being elaborated. The delegation of the Netherlands agreed to prepare a first draft of the general standard for the next session of the Group of Experts.

Status of the Standards

85. The Group of Experts decided to advance the Proposed Draft Standards for Concentrated Pineapple Juice Chemically Preserved and for Concentrated Pineapple Juice Preserved Exclusively by Physical Means to Step 3 of the Procedure. The Secretariat was requested to submit the redrafts of the above two standards and the first draft of the General Standard for Concentrated Fruit Juices Chemically Preserved to governments for comments prior to the next session of the Group of Experts. The Secretariat was further requested to place the Proposed Draft Standard for

Concentrated Pineapple Juice Chemically Preserved high on the agenda of the next session.

CONSIDERATION OF FIRST DRAFTS OF THE PROPOSED DRAFT STANDARD FOE MANGO JUICE AND MANGO NECTAR PRESERVED EXCLUSIVELY BY PHYSICAL MEANS AND A JUSTIFICATION PAPER

86. The Group of Experts had before it proposals for Draft Standards for Mango Juice and Mango Nectar submitted by the delegation of India. In introducing the papers, the delegation mentioned that production of these products was carried out on a large scale in many tropical climate countries such as the Philippines, Bangladesh, India, Egypt, Thailand, Japan, Mexico and Cuba. The quantity entering international trade was being steadily increased. The Chairman expressed his thanks to the delegation of India for the preparation of the above documents.

Proposed Draft Standard for Mango Nectar Preserved Exclusively by Physical Means (First Draft)

87. The Group of Experts decided to study the proposal for a draft standard for mango nectar first and agreed to work through the draft section by section so that the rapporteur would be in a position to revise the proposed draft standard which would be sent to governments at Step 3.

88. It was understood that the present draft would be amended editorially by the Secretariat to bring it into line with existing standards for nectars. The Group of Experts made the following decisions and comments about the various sections for the benefit of the rapporteur.

89. Section I Description was extensively rewritten to bring it into line with other nectar standards. The reference to minimum sieve was deleted from the draft as such a qualification represented technological detail not generally required in such standards. In conformity with other standards for nectars the section on Honey was introduced but placed in square brackets because the Group of Experts understood that it was unlikely that honey would be used in such a product but decided to seek government comments in the customary way.

90. Considering the special nature of this product, the Group of Experts decided to give a range in Section 2.4 Soluble Solids, namely:

"not less than 15% m/m and not more than 20% m/m".

91. The delegation of Yugoslavia suggested a provision for Volatile Acids, but the rapporteur explained that the content of volatile acids was not significant in mango pulp and consequently this requirement did not appear in the market specifications for this product.

92. Some delegations considered that Section 2.2 Quality Factors was not necessary except to provide for a feature of certain varieties of mango. The Group of Experts added a new Section 2.6 as follows:

"2.6 The product shall be practically free from black specks".

93. The remaining parts of the section on Quality Factors were deleted as the factors mentioned in the proposed section would be covered by the Hygiene section.

94. After noting the status of Fumaric Acid, the Group of Experts decided to leave it in the draft but to require a limit to its use and not to leave it to good manufacturing practice. The rapporteur was asked to supply the appropriate limit and the technological

justification for use of fumaric acid. Similarly, the inclusion of Beta Carotene in the draft standard was confirmed by the Group of Experts, but with the following qualification:

"Added in amounts to adjust the natural colour of the product".

95. The Group of Experts decided that in Section 8 Labelling the name of the product would be "mango nectar" or "pulpy mango nectar", and provided for a declaration of minimum fruit content, and the declaration of added water as had been decided for other nectar standards. The section on claims for Vitamin C was deleted from the draft. The Group of Experts decided to add a section on Bulk Packs.

Status of the Standard

96. The Group of Experts agreed to advance the Proposed Draft Standard for Pulpy Mango Nectar Preserved Exclusively by Physical Means to Step 3 of the Codex Procedure. The revised standard is contained in Appendix VIII to this Report.

Proposed Draft Standard for Mango Juice Preserved Exclusively by Physical Means (First Draft)

97. The Group of Experts had before it a proposal for a Proposed Draft Standard for Mango Juice as prepared by the rapporteur (India).

98. Noting that the minimum content of fruit ingredient provided in the draft was to be not less than 50 per cent m/m for fruit pulp, most delegations were in agreement that the resulting final product could not be described as a fruit juice. The delegation of India explained that the high viscosity of mango fruit pulp required the addition of water (and sugar) to produce an acceptable product. The prescription of such a minimum fruit content would place the product within the scope of the Proposed Draft Standard for Nectars already reviewed by the Group. (See also Section 7.1.3 of Appendix VIII.)

99. Nevertheless, the Group of Experts decided to circulate the Proposed Draft Standard for Mango Juice for comments by governments. The standard is contained in Appendix VII to this report which also contains the justification for the standards.

CONSIDERATION OF A PAPER ON MIXTURES OF FRUIT JUICES AND NECTARS

100. The Group of Experts had before it the paper prepared by the delegation of the Netherlands as contained in Appendix V of ALINORM 78/14 and the comments of governments in CX/FJ 78/9 and Add. I.

101. During the discussion on the products mentioned in the paper, it became clear that the paper as prepared by the delegation of the Netherlands should be put into the form of a standard or a guideline for subsequent discussion. Many questions needed to be answered concerning the products and, for example, it would have to be made clear as to their end use, the fruit content above which products would have to be declared in the list of ingredients, and so on.

102. Consequently, the Group of Experts decided to elaborate a document for mixtures of fruit juices and mixtures of nectars in which a recommendation would have to be made as to whether the document should be the basis of a standard or a guideline. The delegation of the Netherlands, assisted by the delegation of Yugoslavia, agreed to undertake this task. The observer from the European Economic Community agreed to assist the rapporteurs in their work.

103. The Group of Experts asked the rapporteurs to send the Draft Proposal to the Secretariat so that the document could be circulated to countries for comment well before the next session of the Group of Experts.

ELECTION OF CHAIRMAN AND VICE-CHAIRMEN

104. The Group of Experts unanimously elected Professor Dr. W. Pilnik (Netherlands) as its Chairman and Mr. W. Orlowski (Poland) and Mr. R. Symeon (Cyprus) as its Vice-Chairmen to serve until the end of the Fourteenth Session.

OTHER BUSINESS

105. The Group of Experts re-examined its work programme in the light of the recommendation of the Twelfth Session of the Codex Alimentarius Commission and proposals from member countries. The Group of Experts' current and future programme would comprise the following:

(1) Blackcurrant Juice Preserved Exclusively by Physical Means at Step 8
(2) Concentrated Blackcurrant Juice Preserved Exclusively by Physical Means at Step 8
(3) Pulpy Nectars of Certain Small Fruits Preserved Exclusively by Physical Means at Step 8
(4) Nectars of Certain Citrus Fruits Preserved Exclusively by Physical Means at Step 5
(5) Concentrated Pineapple Juice Chemically Preserved at Step 3
(6) Concentrated Pineapple Juice Preserved Exclusively by Physical Means at Step 3
(7) Pulpy Mango Nectar Preserved Exclusively by Physical Means at Step 3
(8) Mango Juice Preserved Exclusively by Physical Means at Step 2
(9) Tropical Fruit Juices at Step 2
(10) Guava Nectar and Juice Preserved Exclusively by Physical Means at Step 2
(11) General Standard or Guideline for Mixed Fruit Juices, Nectars etc. at Step 2
(12) General Standard for Concentrated Fruit Juices Chemically Preserved at Step 2
(13) Bulk Sampling and Sampling Plans for Prepackaged Juices
(14) Date Marking
(15) Contaminants
(16) Definitions of Fruit Juices
(17) Classification of Fruit Juices, Nectars, etc. (4th Category)
(18) Draft Code of Practice for the Quality of Water used for the Reconstitution of Fruit Juices from Fruit Juice Concentrate.

106. The Group of Experts noted that the document on tropical fruit juices, which the delegation of Malaysia to the 1st Session of the Coordinating Committee for Asia undertook to prepare, would be available by the end of 1978 (Corrigendum to CX/FJ 78/1, Item 7(c)) and would be sent to governments for comments prior to the next session (see para 105(9)).

DATE AND PLACE OF NEXT SESSION

107. The Group of Experts was informed that the next session would be held in 1980 and additional information on date and place would be made available in due course.

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APPENDIX I

DRAFT STANDARD FOR BLACKCURRANT JUICE PRESERVED EXCLUSIVELY BY PHYSICAL MEANS

(Advanced to Step 8 of the Procedure)

1. DESCRIPTION

Unfermented but fermentable juice, intended for direct consumption, obtained by a mechanical process from sound ripe blackcurrants (Ribes nigrum L.) preserved exclusively by physical means. [1] The juice may be turbid or clarified. The juice may have been concentrated and later reconstituted with water suitable for the purpose of maintaining the essential composition and quality factors of the juice.

[1] For the purpose of this Standard and at this time preservation by physical means does not include ionizing radiation.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Soluble Solids

The soluble blackcurrant solids content of blackcurrant juice (exclusive of. added sugars) shall be not less than 11 per cent m/m as determined by refractometer at 20°c, uncorrected for acidity and read as °BRIX on the International Sucrose Scales.

2.2 Sugars

One or more solid sugars, as defined by the Codex Alimentarius Commission, may be added. The total quantity of sugars added shall not exceed 200 g/kg.

2.3 Ethanol Content

The ethanol content shall not exceed 3 g/kg.

2.4 Volatile Acids

The volatile acids content shall not exceed 1.2 g/kg expressed as acetic acid.

2.5 Organoleptic Properties

The product shall have the characteristic colour, aroma and flavour of blackcurrant juice. Natural volatile blackcurrant juice components may be restored to any blackcurrant juice from which natural volatile blackcurrant juice components have been removed.

2.6 Use of Concentrates

The addition of concentrate to juice is permitted. Only concentrate from Ribes nigrum L. may be used.

3. FOOD ADDITIVES

3.1 Processing Aids

3.1.1 Clarifying and filtering agents as approved by the Codex Alimentarius Commission and used in accordance with good manufacturing practice.

		Maximum Level
3.1.2	Vegetable carbon	Limited by GMP
3.1.3	Nitrogen	
3.1.4	Carbon dioxide	

4. CONTAMINANTS

	Contaminant		Maximum Level	
4.1	Arsenic	(As)	0.2mg/kg	
4.2	Lead	(Pb)	0.3 "	2/
4.3	Copper	(Cu)	5 "	
4.4	Zinc	(Zn)	5 "	
4.5	Iron	(Fe)	15 "	
4.6	Tin	(Sn)	150 "	2/
4.7	Sum of copper, zinc and iron		20 "	
4.8	Sulphur dioxide		10 "	
4.9	Mineral impurities insoluble in 10% hydrochloric acid		20 "	

[2] Temporarily endorsed.

5. HYGIENE

The following provisions in respect of the food hygiene of this product have to be endorsed by the Codex Committee on Food Hygiene.

5.1 It is recommended that the products covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No- CAC/RCP 2-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969) recommended by the Codex Alimentarius Commission.

5.2 When tested by appropriate methods of sampling and examination, the product:

(a) shall be free from microorganisms capable of development under normal conditions of storage; and

(b) shall not contain any substances originating from microorganisms in amounts which may represent a hazard to health.

6. WEIGHTS AND MEASURES

6.1 Fill of Container

6.1.1 Minimum Fill

The Blackcurrant juice shall occupy not less than 90 per cent v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 C which the sealed container will hold when completely filled.

7. LABELLING

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969) the following provisions apply:

7.1 The Name of the Food

7.1.1 The name of the food shall be "blackcurrant juice" except that where sugar or sugars have been added the name of the product shall be "sweetened blackcurrant juice" and the term "contains x% of added sugar" shall appear in close proximity to the name where x times 10 represents the amount of sugar or sugars added in grammes per kilogramme of the final product.

7.2 List of Ingredients

7.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion, except that water added for reconstitution of juice according to Section 1 and the processing aids specified in Sections 3.1.1 to 3.1.4 need not be declared.

7.2.2 In the case of blackcurrant juice made from concentrate, the fact of reconstitution shall be declared in the list of ingredients as follows: "blackcurrant juice made from concentrate", or "reconstituted blackcurrant juice" or "blackcurrant juice made from concentrated blackcurrant juice". If there are no ingredients to be listed in accordance with Section 7.2.1, the expression "blackcurrant juice made from concentrate" or "reconstituted blackcurrant juice" or "blackcurrant juice made from concentrated blackcurrant juice" shall appear on the label.

7.3 Net Contents

The net contents shall be declared by volume in one or more of the following systems of measurement; Metric ("Système International"), United States or British units, as required by the country in which the product is sold; for British units, units of capacity measurement shall be used.

7.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

7.5 Country of Origin

The country of origin of the product shall be declared if the omission would mislead or deceive the consumer.

7.6 Lot Identification

Each container shall be embossed or otherwise permanently marked, in code or in clear, to identify the producing factory and the lot.

7.7 Additional Requirements

The following additional specific provisions shall apply:

7.7.1 No fruit or fruit juice may be represented pictorially on the label except blackcurrants or blackcurrant juice.

7.7.2 Where blackcurrant juice requires to be kept under conditions of refrigeration, there shall be information for keeping and, if necessary, thawing of the product.

7.8 Bulk Packs

In the case of blackcurrant juice in bulk, the information required by Sections 7.1 to 7.7.2 shall either be given on the container or in accompanying documents except that the name of the product and the name and address of the manufacturer or packer should appear on the container. However, the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

8.1 Taking of Sample and Expression of Results as m/m

According to the IFJU method No. 1, 1968, Determination of relative density and the IFJU General Sheet, 19.71; Conversion of analytical results from m/v (g/1, mg/l) to m/m (g/kg, mg/kg) and the reverse.

8.2 Test for Fermentability

According to the IFJU method No. 18, 1974, Fermentation Test. Results are expressed as "positive" or "negative".

8.3 Determination of Soluble Solids

8.3.1 Blackcurrant Juice without added Sugar

According to the IFJU method No. 8B, 1968; Estimation of soluble solids (indirect determination). (See Official Methods of Analysis of AOAC 1975, 22.019, 31.009 and 52.010) Results are expressed as % m/m sucrose ("degrees Brix") with correction for temperature to the equivalent at 20°C.

8.3.2 Blackcurrant Juice with added Sugar

(To be elaborated)

8.4 Determination of Sugars

According to the IFJU method No. 4, 1968, Determination of Sugar (Luft-Schoorl Method). Results are expressed as % m/m.

8.5 Determination of Ethanol

According to the IFJU method No. 2, 1968, Determination of alcohol (Ethyl alcohol) [1]. Results are expressed as g ethanol/kg.

[1] To be amended by IFJU to take into account operating temperatures higher than 20°C.

8.6 Determination of Volatile Acids

According to the IFJU method No. 5, 1968, Determination of volatile acids. Results are expressed as g acetic acid/kg.

8.7 Determination of Arsenic

According to the IFJU method No,47, 1973, Determination of arsenic (Method No. A.34/F of the "Office International de la Vigne et du Vin").

Results are expressed as mg arsenic/kg.

8.8 Determination of Lead

According to the IFJU method No. 14, 1964, Determination of lead (photometric method) [2].Results are expressed as mg lead/kg.

[2] Temporarily endorsed pending Codex General Methods.

8.9 Determination of Copper

According to the IFJU method No. 13, 1964, Determination of copper (photometric method). Results are expressed as mg copper/kg.

8.10 Determination of Zinc

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 25.136 - 25.142 Zinc - Official First Action, Colorimetric Method (26)) l]. Results are expressed as mg zinc/kg.

[1] Temporarily endorsed pending consideration by the IFJU Working Group of AAS method (AOAC 1975, 25.143 - 25.147) for general use in fruit juices.

8.11 Determination of Iron

According to the IFJU method No. 15, 1964, Determination of iron (photometric method). The determination shall be made after dry ashing as described in Section 5 - Remark (b). Results are expressed as mg iron/kg.

8.12 Determination of Tin
(To be elaborated)

8.13 Determination of Sulphur Dioxide

According to the IFJU method No. 7, 1968, Determination of total sulphur dioxide. Results are expressed as mg S02/kg.

8.14 Determination of mineral impurities insoluble in hydrochloric acid

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 22.025 paragraph 1, 31.012 and 30.008 Ash insoluble in Acid. Official Final Action). Results are expressed as mg mineral impurities insoluble in hydrochloric acid/kg.

8.15 Determination of Water Capacity and Fill of Containers

According to the method published in the Almanac of the Canning, Freezing, Preserving Industries, 55th Edition, 1970, pp. 131-132, E.E. Judge and Sons, Westminster MD (USA) [2].

[2] Reproduced in ALINORM 71/23, Appendix V. Endorsement suspended pending review of Codex methods.

APPENDIX II

DRAFT STANDARD FOR CONCENTRATED BLACKCURRANT JUICE PRESERVED EXCLUSIVELY BY PHYSICAL MEANS

(Advanced to Step 8 of the Procedure)

1. DESCRIPTION

1.1 Product Definition

Concentrated blackcurrant juice is the unfermented product which is capable of fermentation after reconstitution, preserved exclusively by physical means [1], obtained by the process of concentration (as defined in Section 1.2; from the raw materials as described in Section 1.3. The product may be turbid or clarified.

[1] For the purposes of this standard and at this time preservation by physical means does not include ionizing radiation.

1.2 Process Definition

The process of concentration consists of the physical removal of water until the product has a soluble blackcurrant solids content of not less than 22% m/m as determined by refractometer at 20°C, uncorrected for acidity and read as ° BRIX on the International Sucrose Scales, and may include the addition of (l) juice or concentrate or of water suitable for the purpose of maintaining the essential composition and quality factors of the concentrate and (2) natural volatile blackcurrant juice components where these have been removed.

1.3 Raw Material

The raw material from which this product is obtained is unfermented but fermentable blackcurrant juice obtained by a mechanical process from sound, ripe blackcurrants (Ribes nigrum L.).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Requirements for the Juice after Reconstitution

The product obtained by reconstituting the concentrated blackcurrant juice in accordance with Section 7.8 of this standard shall comply with the provisions of the Draft Standard for Blackcurrant Juice Preserved Exclusively by Physical Means (exclusive of added sugar) (see Appendix I to this report).

3. FOOD ADDITIVES

3.1 Processing Aids

3.1.1 Clarifying and filtering agents as approved by the Codex Alimentarius Commission and used in accordance with good manufacturing practices.

		Maximum Level
3.1.2	Vegetable carbon	Limited by GMP
3.1.3	Nitrogen	
3.1.4	Carbon dioxide	

4. CONTAMINANTS

When concentrated blackcurrant juice is reconstituted in accordance with Section 7.8 of this standard, the limits of contaminants shall not exceed those laid down in

Section 4 of the Draft Standard for Blackcurrant Juice Preserved Exclusively by Physical Means (see Appendix I to this report).

5. HYGIENE

The following provisions in respect of the food hygiene of this product have to be endorsed by the Codex Committee on Food Hygiene.

5.1 It is recommended that the products covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No. CAC/RCP 1-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969) recommended by the Codex Alimentarius Commission.

5.2 When tested by appropriate methods of sampling and examination, the product:

(a) shall be free from micro-organisms capable of development under normal conditions of storage; and

(b) shall not contain any substances originating from micro-organisms in amounts which may represent a hazard to health.

6. WEIGHTS, AND MEASURES

6.1 Fill of Container

6.1.1 Minimum Fill (exclusive of bulk pack)

The concentrated blackcurrant juice shall occupy not less than 90 per cent v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

7. LABELLING

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969), the following provisions apply:

7.1 The Name of the Food

The name of the product shall be "concentrated blackcurrant juice".

7.2 List of Ingredients

A complete list of ingredients shall be declared on the label in descending order of proportion, except that the components mentioned in Section 1.2 and the processing aids specified in Sections 3.1.1 to 3.1.4 need not be declared.

7.3 Net Contents

The net contents shall be declared by volume in one or more of the following systems of measurement: Metric ("Système International"), United States or British units, as required by the country in which the product is sold; for British units, units of capacity measurement shall be used.

7.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

7.5 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

7.6 Lot Identification

Each container shall be embossed or otherwise permanently marked, in code or in clear, to identify the producing factory and the lot.

7.7 Additional Requirements

The following specific provisions shall apply:

7.7.1 No fruit or fruit juice may be represented pictorially on the label except blackcurrant or blackcurrant juice.

7.7.2 Where concentrated blackcurrant juice is required to be kept under conditions of refrigeration, there shall be information for keeping and, if necessary, thawing of the product.

7.8 Degree of Concentration

Instructions for dilution shall be given on the container by stating the percentage of soluble blackcurrant solids, by weight as determined by refractometer at 20°C, uncorrected for acidity, and read as °BRIX on the International Sucrose Scales or, in the case of prepackaged products, by stating the number of parts by volume of water which are required to be added to one part by volume of the concentrated juice in order to obtain juice which complies with all the provisions of the Draft Standard for Blackcurrant Juice Preserved Exclusively by Physical Means (see Appendix I to this report).

7.9 Bulk Packs

In the case of concentrated blackcurrant juice in bulk, the information required by Sections 7.1 to 7.8 shall either be given on the container or in accompanying documents except that the name of the product and the name and address of the manufacturer or packer should appear on the container. However, the name and address, of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

8.1 Methods of Analysis Determined on the Reconstituted Juice

The methods given under 8.1.1 to 8.1.13 below shall be determined on the product obtained by reconstituting the concentrated blackcurrant juice in accordance with Section 7.8 of this standard.

8.1.1 Expression of Results as m/m

According to the IFJU method No. 1, 1968, Determination of relative density and the IFJU General Sheet, 1971, Conversion of analytical results from m/v (g/l, mg/l) to m/m (g/kg, mg/kg) and the reverse.

8.1.2 Test for Fermentabilitv

According to the IFJU method No. 18, 1974, Fermentation Test. Results are. expressed as "positive" or "negative".

8.1.3 Determination of Soluble Solids

According to the IFJU method No. 8B, 1968, Estimation of Soluble Solids (indirect determination). (See Official Methods of Analysis of AOAC 1975, 22.019, 31.009 and 52.010). Results are expressed as % m/m sucrose ("degrees Brix") with correction for temperature to the equivalent at 20°C.

8.1.4 Determination of Ethanol

According to the IFJU method No. 2, 1968, Determination of alcohol (Ethyl alcohol) [1]. Results are expressed as g ethanol/kg.

[1] To be amended by IFJU to take into account operating temperatures higher than 20°C.

8.1.5 Determination of Volatile Acids

According to the IFJU method No. 5, 1968, Determination of volatile acids. Results are expressed as g acetic acid/kg.

8.1.6 Determination of Arsenic

According to the IFJU method No. 47, 1973, Determination of arsenic (Method No. A.34/F of the "Office International de la Vigne et du Vin"). Results are expressed as mg arsenic/kg.

8.1.7 Determination of Lead

According to the IFJU method No. 14, 1964, Determination of lead (photometric method) [2]. Results are expressed as mg lead/kg.

[2] Temporarily endorsed pending Codex General Methods.

8.1.8 De termination of Copper

According to the IFJU method No. 13, 1964, Determination of copper (photometric method). Results are expressed as mg copper/kg.

8.1.9 Determination of Zinc

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 25.136 - 25.142: Zinc - Official First Action, Colorimetric method (26)) [3]. Results are expressed as mg zinc/kg.

[3] Temporarily endorsed pending consideration by the IFJU Working Group of AAS Method (AOAC 1975, 25.143 - 25.147) for general use in fruit juices.

8.1.10 Determination of Iron

According to the IFJU method No. 15, 1964, Determination of Iron (photometric method). The determination shall be made after dry ashing as described in Section 5 - Remark (b). Results are expressed as mg iron/kg.

8.1.11 Determination of Tin

(To be elaborated)

8.1.12 Determination of Sulphur Dioxide

According to the IFJU method No. 7, 1968, Determination of total sulphur dioxide. Results are expressed as mg so_2/kg.

8.1.13 Determination of Mineral Impurities insoluble in Hydrochloric Acid

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 22.025 paragraph 1, 31.012 and 30.008 Ash insoluble in Acid. Official

Final Action). Results are expressed as mg mineral impurities insoluble in hydrochloric acid/kg.

8.2 Methods of Analysis Determined on the Concentrated Juice

The methods given under 8.2.1 to 8.2.2 below shall be determined on the concentrated product.

8.2.1 Determination of Soluble Solids

According to the IFJU method No. 8B, 1968, Estimation of soluble solids (indirect determination). (See Official Methods of Analysis of AOAC 1975, 22.019, 31.009 and 52.010.) Results are expressed as % m/m sucrose ("degrees Brix") with correction for temperature to the equivalent at 20°C.

8.2.2 Determination of Water Capacity and Fill of Containers

According to the method published in the Almanac of the Canning, Freezing, Preserving Industries, 55th Edition, 1970, pp. 131-132, E.E. Judge and Sons, Westminster MD (USA) [1].

[1] Reproduced in ALINORM 71/23, Appendix V. Endorsement suspended pending review of Codex methods.

APPENDIX III

DRAFT STANDARD FOR PULPY NECTARS OF CERTAIN SMALL FRUITS PRESERVED EXCLUSIVELY BY PHYSICAL MEANS

(Advanced to Step 8 of the Procedure)

1. SCOPE

This standard applies individually to pulpy nectars made from berries of the following species and their hybrids:

- blackcurrants (Ribes nigrum L.)
- red and white currants (cultivars from Ribes rubrum L., R. pallidum, Otto, and Dietr., R. sylvestre (Lam.) Mert. and W.D.J. Kock, etc.)
- gooseberries (Ribes uva-crispa L. and hybrids)
- strawberries (cultivars and hybrids from Fragaria spp.)
- raspoerries (Rubus ideaus L.)
- blackberries (Rubus procerus P.J. Muell., etc.)
- cloudberries (Rubus chamaemorus L.)
- cranberries (Vaccinium oxycoccus L., V. marcrocarpon Ait.)
- whortleberries [2] (Vaccinium vitis idaea L.)
- bilberries (Vaccinium myrtillus L.)
- rowanberries (Sorbus aucuparia~L.)
- sea buckthorn (Hippophaea rhamnoides L.)
- elderberries (Sambucus nigra)
- rose hips (Cynorrhoda of Rosa 3pp.)

[2] Known also by the Swedish name of "lingon" berries.

2. DESCRIPTION

Unfermented out fermentable pulpy product [3] intended for direct consumption, obtaine by blending the total edible sieved or ground and homogenized product of clean, sound and ripe berries, concentrated or unconcentrated, with water and sugars or honey and preserved exclusively by physical means. [1]

[1] For the purpose of this standard, and at this time, preservation by physical means does not include ionizing radiation.

[3] In some species the natural content of free benzoate and sorbate may cause the result of the fermentation test to be negative.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Minimum Content of Fruit Ingredient

The minimum content of single strength fruit ingredient or the equivalent derived from concentrated fruit ingredient in pulpy nectars shall be as folllows for:

	Minimum content
- sea buckthorn	25%
- blackcurrants	30%
- rowanberries	30%
- redcurrants	30%
- whitecurrants	30%
- gooseberries	30%
- blackberries	30%
- cloudberries	30%
- cranberries	30%
- whortleberries	30%
- raspberries	40%
- strawberries	40%
- bilberries	40%
- rose hips	40%
- elderberries	50%

3.2 Sugars

One or more of the sugars as defined by the Codex Alimentarius Commission shall be added. The total quantity of added sugars or honey, calculated as dry matter, shall not exceed 200g per kg of the final product.

3.3 Honey

Honey, as defined by the Codex Alimentarius Commission, may be used if it is the sole added sweetening ingredient.

3.4 Soluble Solids

The soluble solids content of the product shall be not less than 13% m/m as determined by refractometer at 20°C, uncorrected for acidity and read as °BRIX on the International Sucrose Scales.

3.5 Ethanol Content

The ethanol content shall not exceed 3 g/kg.

3.6 Organoleptic Properties

The product shall have the characteristic colour, aroma and flavour of the berry species from which it is made, taking into consideration the addition of honey in substitution of sugars.

4. FOOD ADDITIVES

			Maximum Level
4.1	Citric acid		Limited by GMP
4.2	Malic acid		
4.3	L-Ascorbic acid	as an antioxidant	

5. CONTAMINANTS

		Maximum Level
5.1	Arsenic (As)	0.2 mg/kg
5.2	Lead (Pb)	0.3 mg/kg [1]
5.3	Copper (Cu)	5 mg/kg
5.4	Zinc (Zn)	5 mg/kg
5.5	Iron (Fe)	15 mg/kg
5.6	Tin (Sn)	150 mg/kg [1]
5.7	Sum of copper, zinc and iron	20 mg/kg
5.8	Sulphur dioxide	10 mg/kg

[1] Temporarily endorsed.

6. HYGIENE

The following provisions in respect of the food hygiene of this product have to be endorsed by the Codex Committee on Food Hygiene:

6.1 It is recommended that the products covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No. CAC/RCP 2-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969) recommended by the Codex Alimentarius Commission.

6.2 When tested by appropriate methods of sampling and examination, the product:

(a) shall be free from micro-organisms capable of development under normal conditions of storage; and

(b) shall not contain any substances originating from micro-organisms in amounts which may represent a hazard to health.

7. WEIGHTS AND MEASURES

7.1 Fill of Container

7.1.1 Minimum Fill

The nectar shall occupy not less than 90% v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 C which the sealed container will hold when completely filled.

8. LABELLING

In addition to Sections 1,2, 4 and 6 of the General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969) the following provisions apply:

8.1 The Name of the Food

8.1.1 The name of the product shall be "X nectar" or "pulpy X nectar" or "nectar of X" or "pulpy nectar of X" where "X" is the common name of the berry used.

8.1.2 The words "minimum fruit content X%" shall appear in close proximity to the name of the product where "X" is the actual minimum percentage of fruit ingredient in the final product.

8.2 List of Ingredients

8.2.1 A complete list of ingredients including added water shall be declared on the label in descending order of proportion,

8.2.2 The addition of L-ascorbic acid shall be declared in the list of ingredients as:

(a) "L-ascorbic acid as antioxidant" or

(b) "antioxidant"

8.3 Net Contents

The net contents shall be declared by volume in one or more of the following systems of measurement: Metric ("Système International"), United States or British units, required by the country in which the product is sold; for British units, units of capacity measurement shall be used.

[1] Temporarily endorsed.

8.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall De declared.

8.5 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

8.6 Lot Identification

Each container shall be embossed or otherwise permanently marked, in code or in clear, to identify the producing factory and the lot.

8.7 Additional Requirements

The following additional specific provisions shall apply:

8.7.1 The pictorial representation of fruit or nectar on the label may only be the species of fruit used as the fruit ingredient.

8.7.2 When the product contains honey the declaration "contains honey" shall be in close proximity to the name of the product.

8.7.3 No claim shall be made in respect of "Vitamin C" nor shall the term "Vitamin C" appear on the label unless the product contains such quantities of "Vitamin C" as would be accepted by national authorities in the country in which the product is sold, as warranting such claim or the use of such term.

8.7.4. Where fruit nectars require to be kept under conditions of refrigeration, there shall be information for keeping and, if necessary, thawing of the product.

8.8 Bulk Packs

In the case of fruit nectars in bulk, the information required by Sections 8.1.1 to 8.7.4 shall either be given on the container or in accompanying documents except that the name of product and the name and address of the manufacturer or packer should appear on the container. However, the name and address of the manufacturer or packer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents.

9. METEODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

9.1 Taking of Sample and Expression of Results as m/m

According to the IFJU method No. 1, 1968, Determination of relative density and the IFJU General Sheet, 1971. Conversion of analytical results from m/v (g/l, mg/l) to m/m (g/kg, mg/kg) and the reverse.

9.2 Test for Fermentabilitv

According to the IFJU method No. 18, 1974, Fermentation Test. Results are expressed as "positive" or "negative".

9.3 Determination of Minimum Content of Fruit Ingredient

(To be elaborated)

9.4 Determination of Sugars

According to the IFJU method No. 4, 1968 , Determination of Sugar (Luft-Schoorl Method). Results are expressed as % m/m.

9.5 Determination of Honey (To be elaborated)

9.6 Determination of Soluble Solids

According to the IFJU method No. 8B, 1968, Estimation of soluble solids, indirect determination (see Official Methods of Analysis of the AOAC, 1975, 22.019, 31.009 and 52.010). Results are expressed as % m/m sucrose ("degrees Brix") with correction for temperature to the equivalent at 20°C.

9.7 Determination of Ethanol

According to the IFJU method No. 2, 1968, Determination of alcohol (Ethyl alcohol) [1]. Results are expressed as g ethanol/kg.

[1] To be amended by IFJU to take into account operating temperatures higher than 20^{O}c

9.8 Determination of L-ascorbic Acid

According to the IFJU method No. 17, 1964, Determination of L-ascorbic acid, or microfluorimetric method of AOAC (Official Methods of Analysis of the AOAC 1975) 43.056 - 43.062. Results are expressed as mg L-ascorbic acid/kg.

9.9 Determination of Arsenic

According to the IFJU method No. 47, 1973, Determination of arsenic (Method No. A.34/F of the "Office International de la Vigne et du Vin"). Results are expressed as mg arsenic/kg.

9.10 Determination of Lead

According to the IFJU method No. 14, 1964, Determination of lead (photometric method) [2]. Results are expressed as mg lead/kg.

[2] Temporarily endorsed pending Codex General Methods.

9.11 Determination of copper

According to the IFJU method No. 13, 1964, Determination of copper (photometric method). Results are expressed as mg copper/kg.

9.12 Determination of Zinc

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 25.136 - 25.142: Zinc - Official First Action, Colorimetric Method (26) [3]. Results are expressed as mg zinc/kg.

[3] Temporarily endorsed pending consideration by IFJU Working Group of AAS method (AOAC 1975, 25.143 - 25.147; for general use in fruit juices.

9.13 Determination of Iron

According to the IFJU method No. 15, 1964, Determination of iron (photometric method). The determination shall be made after dry ashing as described in Section 5 - Remark (b). Results are expressed as mg iron/kg.

9.14 Determination of Tin (To be elaborated)

9.15 Determination of Sulphur Dioxide

According to the IFJU method No. 7, 1968, Determination of total sulphur dioxide. Results are expressed as mg SO_2/kg.

9.16 Determination of Water Capacity and Fill of Containers

According to the method published in the Almanac of the Canning, Freezing, Preserving Industries, 55th Edition, 1970, p.131 - 132, E.E. Judge and Sons, Westminster MD (USA) [1].

[1] Reproduced in ALINORM 71/23, Appendix V. Endorsement suspended pending review of Codex methods.

APPENDIX IV

SOME REMARKS CONCERNING THE DEFINITION OF FRUIT JUICES IN CODEX ALIMENTARIUS STANDARDS

INTRODUCTION

The present Codex Standards for fruit juices are committed to a "mechanical" process as far as the extraction of juice is concerned. Just as the word "mechanical" carries a wider descriptive notion than the word "pressing" and was preferred by the Group of Experts, so now we are faced with new developments which tend to make the word "mechanical" too narrow. These latest developments include the extraction of juice by diffusion, a process which has been' well tried in the beet-sugar industry, and has been suggested as a method for making juice of deciduous fruit and of berries. It has become industrial practice in Denmark and South Africa. Then there is the widespread use of enzymes in the preparation of pulp for pressing, which is a process in common use for currants and red grapes and is increasingly used for apples with bad pressing characteristics.

The secretariat is not suggesting that these or any other processes used in the industry, or used experimentally, should be provided for in Codex standards, but the secretariat feels that the time is appropriate to discuss the latest developments in this regard, for the time being informally, as a means of keeping the delegations informed of developments in countries and as a means of stimulating thought and an exchange of ideas on whether the present formulation provides for the current practice and eventual further needs of the industry. Consequently, the secretariat after discussion with the Chairman of the Group. Professor W. Pilnik, asked him to prepare a paper which should serve to introduce the subject for such an informal discussion.

The Group of Experts at its 12th Session discussed this document (CX/FJ 76/13) and paras 15-20 of ALINORM 78/14 reflect the conclusions of the Group of Experts.

The paper prepared by Dr. W. Pilnik reads as follows:

1. Fruit juices, like many other foods, are such complicated systems, that a definition based on their composition is difficult to give, although much progress has been made in this direction. It is therefore understandable that a technological description is thought to provide some kind of a definition of the product. This is the background for the phrase "obtained by a mechanical process" used in the definition of fruit (and berry) juices in Codex Alimentarius Standards. The expression "mechanical" is obviously a gallant attempt to take into account other mechanical methods of solid/liquid separation than the traditional presses, like sedimentation, centrifugation, vibrating screens, etc.

2. In recent years the question whether the term "mechanical process" is an adequate description for present technologies and will remain adequate for new technologies, has been finding increasing attention in the fruit juice world. The mechanical process stipulated is a description of two mechanical operations - disintegration of (part of) the fruit and a liquid/solid separation sometimes combined with a classifying operation to obtain a specified pulp content of specified size range. It is, of course, well known, that as a consequence of these operations, many phenomena occur (1). There is a diffusion of soluble substances from pulp into the fluid phase and many of these compounds react with oxygen, with themselves, with *one* another and with native enzymes. A few examples of well studied reactions are pectin demethoxylation by

pectinesterase, enzymic depolymerisation of pectins and (hemi) celluloses, chemical or enzymic oxydation of unsaturated fatty acids followed by chemical scission, chemical or enzymatic oxydation of polyphenols followed by polycondensation and reaction with proteins, epoxydation, furanisation and isomerisation of carotenoids, crystallization of hesperidin or naringin, crystallization of tartrates, enzymatic saccharose inversion, limonin lactone formation etc. etc. These and many other phenomena and reactions, which are all-important for the appearance, the flavour and the stability of fruit juices are surely no mechanical processes, but they are initiated by them and can to a certain extent be controlled by them. Thus the influence of extraction pressure and finisher characteristics on the quality of citrus juices (2) or the-influence of the holding time of apple pomace between milling and pressing (3) have been the subject of many studies. As far as the active participation of the technologist is concerned all these changes going on could still be fitted under the heading of mechanical process.

3. On the other hand the technologist does execute certain processes which are not purely mechanical. A few examples follow for those fruit juices for which we have elaborated standards:

- Most juices, but mainly citrus, pineapple and tomato, are heat treated to inactivate pectinesterase which would destroy cloud stability by causing pectin coagulation. In tomatoes this enzyme acts so quickly, that often heat treatment is combined with juice extraction by blowing steam into the disintegrator. Heat treatment to destroy enzymes is a chemical process.

- Heat treatment is also performed to speed up the diffusion of anthocyanin pigments from skins into the liquid phase, e.g. when blue grapes or black currants are pressed at high temperature. This practice must be classified as a physical process (diffusion)..

- Lemon juice is often deoiled by distillation immediately after pressing to make and keep it palatable. This, is a classical physical process.

- Soft fruit, currants, blue grapes and apples are often treated with enzymes after pulping. The enzymes break down the tissue structure by depolymerizing pectins. As a consequence high juice yields are obtained by pressing. The destruction of skin tissues also makes it possible for the anthocyanin pigments of grapes and currants to diffuse into the juice. This pulp enzyming process is as old as the currant and soft fruit juice industry (4). In recent years it has become firmly entrenched in the grape ('3) and apple juice (6) industry. It must be described as a biochemical process, initiated by the addition of enzymes. In many cases the subsequent mechanical phase separation would not be possible without it. In order to reduce polyphenol interference with the added enzyme the pulp is either preoxidized by mixing to admit air-oxygen or polyvinylpyrolidone is added. In both cases chemical processes are performed by providing reaction partners.

- The enzyming of. pulp has recently been developed further to a liquefying process (7). Enzyme preparations used for juice clarification or enzyming of pulp are fortified with cellulases and added to coarsely ground pulp. This then liquefies readily due to the break down of middle lamella pectin and cell wall constituents. Analytically this can be followed by measuring a decrease in alcohol and water insoluble solids and an increase in soluble solids which means that calculated on soluble solids yields higher than 100% are obtained. Microscopically the disappearance of cell structure and even

of cell walls can be observed. For cloudy juices only pits and/or skin fragments or some lignified tissue must be sieved off; clear juices are obtained by filtration. The juices have a ready-to-drink consistency, contrarily to mechanically homogenized systems which must be diluted to become palatable (nectars). This new process requires little capital investment. It is thought to be of special interest for kinds of fruit for which no conventional process exists yet. It can best be described as a biochemical process.

- A very exciting new development is the industrial application of the diffusion process for apple juice manufacture (8). Diffusion is of course used to extract sugar from sugar beet and has often been recommended for the production of fruit juices (9). In present industrial practice (8) apples are sliced and transported in a screw in countercurrent against a stream of water at 40°C to 600 C. This temperature is necessary to make the cell walls permeable, so that diffusion is possible. The enzymatic processes which are responsible for part of the apple juice characteristics take place at the cut surface and in some inadvertedly disintegrated material so that the liquid phase leaves the apparatus with the composition and the sensory characteristics of apple juice and therefore is in fact apple juice. The wet exhausted apple slices leaving the apparatus at the other end are pressed and the press liquor is recirculated as extractant. The water necessary to start the operation and to make up the balance can in principle be taken from the condensate of a concentrating unit. The process allows large quantities of juice to be made continuously, hygienically, with very little labour and with a practically 100% yield calculated on soluble solids. The solids concentration will be slightly lower than that of the juice obtained by direct pressing and must be corrected by concentrating or by the addition of concentrate. The process can be described as a combination of mechanical (slicing,, pressing) and physical processes (diffusion). It is to be expected that it will also be applied to other fruit.

4. The examples given show that the expression "mechanical process" is not adequate to describe fruit juices, even if newer technologies are disregarded. In many cases the mechanical process is accompanied by deliberate chemical reactions or made possible only by enzyme additions or is combined with physical processes. It seems therefore desirable to broaden the definition. To replace the word mechanical by physical would create the danger of endless semantic discussions because many modern authors do not consider physical as a higher order expression of which mechanical would be a part, but make a clear distinction between mechanical and physical processes. Saying "mechanical and physical" would not account for the chemical processes described nor for the important enzyming of pulp.

5. One solution to the problem would be not to attempt any definition of fruit juice by technology at all. This solution has been chosen by other committees: e.g. the standard for glucose syrup (CAC/RS 9-1969) just says: "Glucose syrup is a purified concentrated aqueous solution of nutritive saccharides obtained from starch". The product definition for processed tomato concentrates (CAC/RS 57-1972) says: "**...** is the product prepared by concentrating the liquid obtained from sound, mature red tomatoes." Evaporated milk (CX 5/70 App. III-C) is said to be the "**...** liquid product obtained by the partial removal of water only from milk". In our own standards we do not say how volatiles are obtained. In line with this practice the definition section of fruit juice standards could simply say: "**...**x juice is the juice obtained from sound and mature x fruit" or, in the case of citrus: "**...** the juice obtained from the endocarp of sound and mature x fruit". It is suggested that this simplification would correct the present situation and would not hamper technological progress. The elaboration of criteria for juice identity and of analytical methods to ascertain them is a long range project which is actively pursued by many groups but is

outside standardization activities. Finally the possibility always exists to prohibit specifically certain processes if they are suspected of harmful effects as is being done for irradiation.

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APPENDIX V

DRAFT CODE OF PRACTICE FOR THE QUALITY OF WATER USED FOR THE RECONSTITUTION OF FRUIT JUICES FROM FRUIT JUICE CONCENTRATE [1]

Introduction

According to the definitions in the particular fruit juice standards, fruit juices may also be produced from fruit juice concentrates by using water suitable for the purpose of ' Maintaining the essential composition and quality of the juices. The main points should be mentioned in a general definition concerning the quality of water used for the reconstitution of fruit juice concentrates. A risk may arise, however, that if the definition is too generalized it may be interpreted in different ways. Therefore, the Code of Practice should give more exact specifications for the water used in the reconstitution of fruit juice concentrates. Particular importance will be attached to the following criteria:

- The water has to be free from all substances able to influence disadvantageously the appearance, the taste and the flavour of the reconstituted fruit juices.
- The water shall not change the main physical characteristics of the reconstituted juices in comparison to the natural juices.
- The water has to be acceptable microbiologically.

The question will arise whether drinking water defined in the International Standard has these characteristics and quality.

The following notations are made in this contexts

The reconstituted fruit juices would show considerable deviations from the values for non-reconstituted fruit juice, if drinking water corresponding to the WHO International Standard for Drinking Water (1971) should be used for the production of fruit juices.

These deviations regarding mineral salts are described in the current literature. For example the highest desirable levels of some cations and anions recommended in the "Standard water for domestic use" are compared to average values of non-reconstituted orange and apple juices:

[1] The Group of Experts decided to reconsider this draft code at a future session in the light of further information. In the meantime the draft code could be regarded as a guideline indicating the philosophy of the Group of Experts concerning the quality of the water required for the reconstitution of fruit juices.

WHO Standard For Water For Domestic Use

		Highest desirable level ppm	Maximum permissible level ppm	Orange juice	Apple juice
Nitrate	(NO_3)	45	-	0,2 - 3.2	2,18 - 18,6
Sulphate	(SO_4)	200	400	60 - 167	45 - 171
Chloride	(C1)	200	600	10 60	5 - 6
Calcium	(Ca)	75	200	80 - 240	59 100

Assuming that good drinking water presents generally the following values:

Nitrate	(NO_3)	:	about 30 ppm
Sulphate	(SO_4)	:	about 25-50 ppm
Chloride	(C1)	:	about 50 ppm

Concerning these substances, it is obvious, comparing the tables, to which extent the analytical values for orange or apple juice would shift, using drinking water for the re-constitution of these juices, which conformed to the "highest desirable level" of the standard for water for domestic use (WHO).

Moreover, drinking water having a high degree of hardness would influence the organoleptic quality of reconstituted fruit juice concentrates, by neutralising the fruit acids (malic acid, citric acid, tartaric acid). Furthermore, slightly soluble compounds will be formed because of the high content of calcium in water (e.g. calcium in water (e.g. calcium salts of tartaric acid, calcium salts of. pectinic acid).

In the case of the increased concentration of nitrates in the reconstituted fruit juices due to the water used these nitrates may influence the detinning of varnished cans during the storage of such juices and are thus a risk to human health.

Free chlorine, sometimes added in high concentration for the sterilization of drinking water, (up to 0,6 mg/l) would perceptibly diminish the quality of such a reconstituted fruit juice.

In some cases provision of suitable drinking water for the population is only possible, if the water originally contained low quantities of chemical substances. An influence on taste is to be feared in adding such water to concentrated fruit juices. Therefore an organoleptic influence on fruit juices produced in such a way, cannot be excluded in all cases. Fruit juices produced in such a way may differ significantly in their chemical properties from non-reconstituted fruit juices. It becomes still more difficult to express an adulteration of reconstituted products. This fact concerns especially nitrates, chlorides and sulphates, which by reconstitution reach high quantities in the final product. Therefore the following limits for minerals should be valid, on principle for hygienic reunions, even for reconstituted fruit juices:

Sulphate	(SO_4)	:	not over 200 mg/1 in reconstituted fruit juices
Chloride	(C1)	:	not over 200 mg/1 in reconstituted fruit juices
Nitrate	(NO_3)	:	not over 45 mg/1 in reconstituted fruit juices

The maximum value for toxic chemical substances recommended in the WHO International Standard for Drinking-Water have been reduced in some cases in this Code of Practice (e.g. Pb from 0,1 mg/l to 0,04. mg/l and Cd from 0,01 mg/l to 0,006 mg/l), in order to avoid as far as possible an accumulation of these substances in the reconstituted fruit ju-ices. In order to insure Buccess the reconstituted fruit juices should never exceed the limits of contaminants for fruit juices determined by the Codex Committee on food Additives (e.g.

As, Pb, Sn).

Using permutited water for the reconstitution of fruit juice concentrates, may raise certain problems and would increase very much the sodium content of the juices, because nearly all fruit juices have a low sodium content (Ma below 120 mg/l).

Therefore it would be worthwhile limiting the sodium content in reconstituted fruit juices. Such a limit was already proposed for sulphates, chlorides and nitrates.

The microbiological requirements of water used for the reconstitution of fruit juice concentrates shall be stricter than those recommendations in the WHO International Standard for Drinking Water. Therefore, the limits of the number of colonies have been included in this Code of Practice.

SECTION I - SCOPE AND PURPOSE

1.1 This Code of Practice is intended to provide guidelines for the production of reconstituted fruit juices.

1.2 This Code of Practice is intended as a guide to assist in the production of reconstituted fruit juices, so that only such water is used which will be suitable for the purpose of maintaining the essential factors of composition and quality of the juices due to its physical, chemical and organoleptic properties.

1.3 This Code of Practice is only intended to provide guidelines for the chemical, bacteriological and some physical requirements for water used for the reconstitution of fruit juices.

SECTION II - PHYSICAL AND CHEMICAL REQUIREMENTS OP WATER

2.1 Water for the reconstitution of fruit juices shall be unobjectionable regarding flavour and taste.

2.2 The water for the reconstitution of fruit juices shall not exceed the following limits for chemical substances:

2.2.1	Arsenic	(As)	0,04	mg/l
2.2.2	Lead	(Pb)	0,04	mg/l
2.2.3	Copper	(Cu)	0,05	mg/l
2.2.4	Zinc	(Zn)	2.0	mg/l
2.2.5	Iron	(Fe)	0,1	mg/l
2.2.6	Tin	(Sn)	....	

2.3 Without regard to the limits under 2.2. the water for reconstitution shall not be in such a condition that the content of contaminants in the reconstituted fruit juices exceeds those limits laid down for the special juices by the Codex Committee on Food Additives.

2.4 Furthermore, the following limits for chemical substances in water for the reconstitution of fruit Juices shall not be exceeded:

2.4.1	Cadmium	(Cd)	0,006	mg/l
2.4.2	Cyanides	(CM)	0,05	mg/l
2.4.3	Mercury	(Hg)	0,001	mg/l
2.4.4	Selenium	(Se)	0,008	mg/l
2.4.3	Calcium	(Ca)	75	mg/l
2.4.6	Magnesium	(Mg)	30	mg/l
2.4.7	Manganese	(Mn)	0,05	mg/l
2.4.8	Fluoride	(F)	1,5	mg/l

2.5 The effect of the water added to fruit juice concentrates for the purpose of reconstitution shall be such that the following limits are not exceeded in reconstituted fruit juices:

2.5.1	Sodium	(Na)	120	mg/l
2.5.2	Sulphate	(SO_4)	200	mg/l
2.5.3	Chloride	(C1)	200	mg/l
2.5.4	Nitrate	(NO_3)	45	mg/l

Exceptions may be provided in the special standards.

2.6 Water for reconstitution shall not contain Phenolic compounds, free chlorine and other substances giving flavours or tastes which change the organoleptic characteristics of reconstituted juices. Other quality criteria of the juices shall still remain.

2.7 The pH-value of the water should not be less than 7,0 and not more than 8.5. The pH-value of determinalized water may be below 7.

SECTION III - MICROBIOLOGICAL REQUIREMENTS OF WATER

3.1 Water for the reconstitution of fruit juice concentrates shall be free from pathogenic organisms,

3.2 Ho sample of water shall contain E. coli. In 100 ml water no coliforms shall be present. The methods recommended in the International Standard for Drinking Water, shall be valid for the methods of the determination of coliforms and E. coli.

3.3. The number of colonies obtained from 1 ml of water shall not exceed 100.

The determination of the number of colonies shall be performed on gelatine or agar culture media at an incubation temperature of 20° ±2° C and at an incubation time of 44± 4 hours.

APPENDIX VI

PROPOSED DRAFT STANDARD FOR NECTARS OF CERTAIN CITRUS FRUITS PRESERVED EXCLUSIVELY BY PHYSICAL MEANS

(advanced to Step 5 of the Procedure)

1. SCOPE

This standard applies individually to nectars made from the following species of citrus fruits:

Orange (Citrus sinensis L. Osbeck)
Mandarine, tangerine, etc. (Citrus reticulata)
Grapefruit (Citrus paradisi Macfadyen)

2. DESCRIPTION

2.1 Unfermented but fermentable product, intended for direct consumption, obtained by blending a juice, a reconstituted concentrated juice and/or the sieved or ground endocarp of a specified citrus fruit with water, sugars or honey, and preserved exclusively by physical means [1].

[1] For the purpose of this standard preservation by physical means does not include ionizing radiation.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Minimum Content of Fruit Ingredient

3.1.1 The minimum content of single strength fruit ingredient or the equivalent derived from concentrated fruit ingredient shall not be less than 50% m/m.

3.1.2 The addition of 10% m/m mandarine fruit ingredient (C. reticulata), related to the orange fruit ingredient content, to the orange nectar is permitted.

3.2 Sugars

One or more of the sugars as defined by the Codex Alimentarius Commission shall be added. [The total quantity of added sugars or honey, calculated as dry matter, shall not exceed 200g/kg of the final product.]

3.3 Honey

Honey, as defined by the Codex Alimentarius Commission, may be used if it is the sole added sweetening ingredient.

3.4 Soluble Solids

The soluble solids content of these products shall be not less than 12.0% m/m as determined by refractometer at 20 c, uncorrected for acidity and read as Brix on the International Sucrose Scales.

3.5 Ethanol Content

The ethanol content shall not exceed 3 g/kg.

3.6 Lemon Juice

Lemon juice may be added as an acidifying agent.

3.7 Volatile Acids

The volatile acids content shall not exceed *[*0.40 g/kg*]* expressed as acetic acid.

3.8 Essential Oils

The essential oils content shall not exceed *[*0.4ml/kg*]*.

3.9 Organoleptic Properties

The product shall have the characteristic colour, aroma and flavour of the fruit from which it is made, taking into consideration the addition of honey in substitution for sugars. Natural volatile components of the specified fruit may be added.

4. CONTAMINANTS (subject to endorsement by the Codex Committee on Food Additives)

		Maximum Level	
4.1	Arsenic (As)	0.2	mg/kg
4.2	Lead (Pb)	0.3	mg/kg
4.3	Copper (Cu)	5	mg/kg
4.4	Zinc (Zn)	5	mg/kg
4.5	Iron (Fe)	15	mg/kg
4.6	Tin (Sn)	250	mg/kg [1]
4.7	Sum of copper, zinc and iron	20	mg/kg
4.8	Sulphur dioxide	10	mg/kg

[1] Remains under review.

5. HYGIENE (subject to endorsement by the Codex Committee on Food Hygiene)

5.1 It is recommended that the products covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No. CAC/RCP 2-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969) recommended by the Codex Alimentarius Commission.

5.2 When tested by appropriate methods of sampling and examination, the product:

(a) shall be free from micro-organisms capable of development under normal conditions of storage; and

(b) shall not contain any substances originating from micro-organisms in amounts which may present a hazard to health.

6. WEIGHTS AND MEASURES

6.1 Fill of Container

6.1.1 Minimum Fill

The nectar shall occupy not less than 90% v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 C which the sealed container will hold when completely filled.

7 LABELLING (subject to endorsement by the Codex Committee on Food Labelling)

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969), the following provisions apply:

7.1 The Name of the Food

7.1.1 The name of the product shall be "X nectar" or "pulpy X nectar", or "nectar of X" or "pulpy nectar of x" where "X" represents the name of the citrus fruit used.

7.1.2 The words "Minimum fruit content X%" shall appear in close proximity to the name of the product where "X" is the actual minimum percentage of fruit ingredient in the final product.

7.2 List of Ingredients

A complete list of ingredients including added water shall be declared on the label in descending order of proportion.

7.3 Net Contents

The net contents shall be declared by volume in one or more of the following systems of measurement: Metric ("Système International"), US or British units, as required by the country in which the product is sold; for British units, units of capacity measurement shall be used.

7.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter, or vendor of the product shall be declared.

7.5 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

7.6 Additional Requirements

The following additional specific provisions shall apply:

7.6.1 No fruit, fruit juice or fruit nectar may be represented pictorially on the label than that of the species of fruit from which the nectar is made.

7.6.2 When the product contains honey the declaration "contains honey" shall be in close proximity to the name of the product.

7.6.3 Where citrus fruit nectars require to be kept under conditions of refrigeration, there shall be information for keeping and if necessary thawing of the product.

7.7 Lot Identification

Each container shall be embossed or otherwise permanently marked in code or in clear, to identify the producing factory and the lot.

7.8 Bulk Packs

In the case of citrus fruit nectar in bulk, the information required in 7.1.1 to 7.7 shall be given on the container or in accompanying documents except that the name of the product and the name and address of the manufacturer should appear on the container. However, the name and address of the manufacturer or packer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying document.

8. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

8.1 Taking of Sampling and Expression of Results as m/m

According to the IFJU method No. 1, 1968, Determination of relative density and the IFJU General Sheet, 1971, Conversion of analytical results from m/v (g/l, mg/l; to m/m (g/kg, mg/kg) and the reverse.

8.2 Test for Fermentabilitv

According to the IFJU method No. 18, 1974, Fermentation Test. Results are expressed as "positive" or "negative".

8.3 Determination of Minimum Content of Fruit Ingredient

(To be elaborated)

8.4 Determination of Sugars

According to the IFJU method No. 4, 1968, Determination of sugar (Luft-Schoorl method). Results are expressed as % m/m.

8.5 Determination of Honey (To be elaborated)

8.6 Determination of Soluble Solids

According to the IFJU method No. 8B, 1968), Estimation of soluble solids, indirect determination (see Official Methods of Analysis of the AOAC, 1975, 22.019, 31.009 and 52.010). Results are expressed as % m/m sucrose ("degrees Brix") with correction for temperature to the equivalent at 20 C.

8.7 Determination of Ethanol

According to the IFJU method No. 2, 1968, Determination of alcohol (Ethyl alcohol) [1]. Results are expressed as g ethanol/kg.

[1] To be amended by IFJU to take into account operating temperatures higher than 20°C.

8.8 Determination of Volatile Acids

According to the IFJU method No. 5, 1968, Determination of volatile acids. Results are expressed as g acetic acid/kg.

8.9 Determination of Essential Oils

According to the AOAC (1970) method (official Methods of Analysis of the AOAC, 1970, 22.096 - 22.097 and 19.117 Essential Oil (37) - Official First Action)). Results are expressed as ml essential oils/kg.

8.10 Determination of Arsenic

According to the IFJU method No. 47, 1973, Determination of arsenic (Method No. A.34/F of the "Office International de la Vigne et du Vin"). Results are expressed as mg arsenic/kg.

8.11 Determination of Lead

According to the IFJU method No. 14, 1964, Determination of lead (photometric method [1]. Results are expressed as mg lead/kg.

[1] Temporarily endorsed pending Codex General Methods.

8.12 Determination of Copper

According to the IFJU method No. 13, 1964, Determination of copper (photometric method). Results are expressed as mg copper/kg.

8.13 Determination of Zinc

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 25.136 - 25.142, Zinc- Official First Action, Colorimetric Method (26)) [2]. Results are expressed as mg zinc/kg.

[2] Temporarily endorsed pending consideration by IFJU Working Group of AAS method (AOAC 1975, 25.143 - 25.147; for general use in fruit juices.

8.14 Determination of Iron

According to the IFJU method No. 15, 1964, Determination of iron (photometric method). The determination shall be made after dry ashing as described in Section 5 - Remark (b). Results are expressed as mg iron/kg.

8.15 Determination of Tin

(To be elaborated)

8.16 Determination of Sulphur Dioxide

According to the IFJU method No. 7, 1968, Determination of total sulphur dioxide. Results are expressed as mg S02/kg.

8.17 Determination of Water Capacity and Fill of Containers

According to the method published in the Almanac of the Canning, Freezing, Preserving Industries, 55th Edition, 1970, p. 131-132, E.E. Judge and Sons, Westminster MD (USA) [3].

[3] Reproduced in ALINORM 71/23, Appendix V. Endorsement suspended pending review of Codex methods.

APPENDIX VII

INFORMATION ON MANGO JUICE AMD NECTAR

In the Light of Work Criteria Established by the Codex Alimentarius Commission. *

(Prepared by India)

* A First Draft of a Proposed Draft Standard for Mango Juice is contained in Annex I of this paper and a Proposed Draft Standard for Pulpy Mango Nectar has been advanced to Step 3 of the Procedure and is contained in Appendix VIII to this Report.

Mango is one of the most widely grown fruits in the tropical and sub-tropical regions. The mango tree is evergreen reaching a height of 12 to 20 metres and produces fruits containing ascorbic acid and Vitamin 'A'. When ripe, the mango has a soft, juicy pulp with yellow and orange colour.

Besides India, the major producing countries are United Arab Republic, Cuba, West Indies, West Africa, Latin America and South East Asia. Mango is also grown in sub-tropical areas of the United, States (Florida) and Australia.

Besides the variety "Alfonso", which is exported as fresh, India produces wide varieties of mangoes. Annual production of mango in India in 1975-1976 was 8.9 million tonnes. Export of Alfonso mango during 1975-76 was about 4,000 tonnes. During 1976 India exported 12,000 tonnes of mango juice/mango nectar to various countries. It is reported that Egypt exports 10,000 to 15,000 tonnes of mango juice annually. Figures for exports of mango from other countries are not readily available.

The quality of mango juice sold by some exporters is far from satisfactory. It is reported that in some cases pulp content is hardly 10% and Carboxy Methyl Cellulose is used as a thickening agent. Export of mango juice/mango nectar has been increasing from year to year and is likely to go up considerably. There is, therefore, need for consumer protection, which can be ensured by drawing up Codex Standards to ensure a minimum quality standard for the products.

ANNEX I to
APPENDIX VII

FIRST DRAFT OF A

PROPOSED DRAFT STANDARD FOR MANGO JUICE PRESERVED EXCLUSIVELY BY PHYSICAL MEANS

(Rapporteur - India)

1. DESCRIPTION

Unfermented but fermentable juice intended for direct consumption obtained by a mechanical process from sound, ripe mangoes (Mangifera Indica L.) preserved exclusively by physical means [1]. The juice may be prepared from fresh mango pulp or mango pulp preserved without any chemical preservative with the addition of water, natural sweeteners and other ingredients appropriate to the product, while maintaining the essential composition and quality factors of the juice.

[1]. For the purposes of this standard preservation by physical means does not include ionizing radiation.

1.1 Varietal Types

Any commercial cultivated variety/varieties of mango suitable for manufacture of juice may be used.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Basic Ingredients

2.1.1 Minimum Content of Fruit Ingredients

The product shall contain not less than [50% m/m] of fruit pulp. The pulp shall be passed through a finisher with not more than 0.8 mm mesh sieve.

2.1.2 Sugars

One or more solid sugars, as defined by the Codex Alimentarius Commission may be added.

2.1.3 Total Soluble Solids

The total soluble solids in mango juice shall be not less than 15 as determined by refractometer at 20 C uncorrected for acidity and read as Brix on the International Sucrose Scales.

2.1.4 Ethanol Content

The ethanol content shall not exceed 3 gms/kg.

2.2 Quality Factors

2.2.1 The product, when packed, shall be free from burnt or objectionable taints and flavours and shall have a good consistency.

2.2.2 Fruit skin, stem residue, fibrous matter, larva, insect fragments or any other foreign matter shall not be present in the juice.

2.2.3 The product shall be practically free from black specks.

2.3 Organoleptic Properties

The product shall have the characteristic colour, aroma and flavour of the variety/varieties of mango used.

3. FOOD ADDITIVES (subject to endorsement by the Codex Committee on Food Additives)

3.1 Acidifying Agents

		Maximum Level
3.1.1	Citric acid	Limited by GMP
3.1.2	Malic acid	
3.1.3	Fumaric acid	

3.2 Natural Colour

	Beta Carotene	Limited by GMP

4. CONTAMINANTS (subject to endorsement by the Codex Committee on Food Additives)

	Contaminant	Maximum Level	
4.1	Arsenic (As)	0.2	mg/kg
4.2	Lead (Fb)	0.3	mg/kg
4.3	Copper (Cu)	5.0	mg/kg
4.4	Zinc (Zn)	5.0	mg/kg
4.5	Iron (Fe)	15	mg/kg
4.6	Tin (Sn)	250	mg/kg [1]
4.7	Sum of copper, zinc and iron	20	mg/kg
4.8	Sulphur dioxide	10	mg/kg

[1] Remains under review.

5. HYGIENE (subject to endorsement by the Codex Committee on Food Hygiene)

5.1 It is recommended that the product covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No. CAC/RCP 2-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969) recommended by the Codex Alimentarius Commission.

5.2 When tested by appropriate methods of sampling and examination the product

(a) shall be free from micro-organisms capable of development under normal conditions of storage; and

(b) shall not contain any substances originating from micro-organisms in amounts which may represent a hazard to health.

6. WEIGHTS AND MEASURES

6.1 Fill of Container

6.1.1 Minimum Fill

The mango juice shall occupy not less than 90 per cent v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 C which the sealed container will hold when completely filled.

7. LABELLING (subject to endorsement by the Codex Committee on Food Labelling)

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969) the following provisions apply:

7.1 The Name of the Food

The name of the food shall be "Mango Juice".

7.2 List of Ingredients

A complete list of ingredients including added water shall be declared on the label in descending order of proportion.

7.3 Net Contents

The net contents shall be declared by volume in one or more of the followinq systems of measurement: Metric ("Système International"), United States or British units, as required by the country in which the product is sold; for British units, units of capacity measurement shall be used.

7.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

7.5 Country of Origin

The country of origin of the product shall be declared if the omission would. mislead or deceive the consumer.

7.6 Lot Identification

Each container shall be embossed or otherwise permanently marked in code or in clear to identify the producing factory and the lot.

7.7 Additional Requirements

The following additional specific provisions shall apply:

7.7.1 No fruit or fruit juice may be represented pictorially on the label except mangoes or mango juice.

7.7.2 Where mango juice requires to be kept under conditions of refrigeration, there shall be information for keeping and, if necessary, thawing of the product.

7.8 Bulk Packs

In the case of mango juice in bulk, the information required by Sections 7.1 to 7.7.2 shall either be given on the container or in accompanying documents except that the name of the product and the name and address of the manufacturer or packer should appear on the container. However, the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING (To be completed)

APPENDIX VIII

PROPOSED DRAFT STANDARD FOR PULPY MANGO NECTAR PRESERVED EXCLUSIVELY BY PHYSICAL MEANS

(at Step 3 of the Procedure)

1. DESCRIPTION

1.1 Unfermented but fermentable pulpy product, intended for direct consumption, obtained by blending mango pulp, obtained by a mechanical process from sound, ripe mangoes (Mangifera Indica L.) as defined in section 1.2 with water and sugars *[*or honey*]* and preserved exclusively by physical means [1].

[1] For the purposes of this standard preservation by physical means does not include ionizing radiation.

1.2 Varietal Types

Any commercial cultivated variety or varieties of mango suitable for the manufacture of the nectar may be used.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Minimum Content of Fruit Ingredient

The product shall contain not less than 30% m/m of mango pulp.

2.2 Sugars

One or more of the sugars as defined by the Codex Alimentarius Commission shall be added.

*[*2.3 Honey

Honey, as defined by the Codex Alimentarius Commission, may be used if it is the sole added sweetening agent.]

2.4 Soluble Solids

The soluble solid content of the product shall be not less than 15% m/m and not more than 20% m/m as determined by refractometer at 20°C uncorrected for acidity and read as Brix on the International Sucrose Scales.

2.5 Ethanol Content

The ethanol content shall not exceed 3 g/kg.

*[*2.6 The product shall be practically free from black specks.*]*

2.7 Organoleptic Properties

The product shall have the characteristic colour, aroma and flavour of the variety or varieties of mango from which it is made, [taking into consideration the addition of honey in substitution for sugars].

3. FOOD ADDITIVES (subject to endorsement by the Codex Committee on Food Additives)

		Maximum Level
3.1	Citric acid)	limited by GMP
3.2	Malic acid)	
3.3	Fumaric acid	*[ ]* mg/kg *
3.4	Beta-carotene (added in amounts to adjust and standardize the natural colour of the product)	limited by GMP

* Figure to be supplied by the delegation of India.

4. CONTAMINANTS (subject to endorsement by the codex Committee on Food Additives

	Contaminant	Maximum Level
4.1	Arsenic (As)	0.2 mg/kg
4.2	Lead (Pb)	0.3 mg/kg
4.3	Copper (Cu)	5 mg/kg
4.4	Zinc (Zn)	5 mg/kg
4.5	Iron (Fe)	15 mg/kg
4.6	Tin (Sn)	230 mg/kg [2]
4.7	Sum of copper, zinc and iron	20 mg/kg
4.8	Sulphur dioxide	10 mg/kg

[2] Remains under review.

5. HYGIENE (subject to endorsement by the Codex Committee on Food Hygiene)

5.1 It is recommended that the product covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No. CAC/RCP 2-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969) recommended by the Codex Alimentarius Commission.

5.2 When tested by appropriate methods of sampling and examination the product:

(a) shall be free from micro-organisms capable of development under normal conditions of storage; and

(b) shall not contain any substance originating from micro-organisms in amounts which may represent a hazard to health.

6. WEIGHTS AND MEASURES

6.1 Fill of Container

6.1.1 Minimum Fill

The mango nectar shall occupy not less than 90 per cent v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water of 20 c which the sealed container will hold when completely filled.

7. LABELLING (subject to endorsement by the Codex Committee on Food Labelling)

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969) the following provisions apply:

7.1 The Name of the Food

7.1.1 The name of the product shall be "mango nectar" or "pulpy mango nectar".

7.1.2 The words "minimum fruit content x%" shall appear in close proximity to the name of the product where "x" represents the actual percentage of fruit pulp in the final product.

*[*7.1.3 Where the final product contains more than 50% of fruit pulp the name of the product may be "mango juice"*]*

7.2 List of Ingredients

A complete list of ingredients including added water shall be declared on the label in descending order of proportion.

7.3 Net Contents

The net contents shall be declared by volume in one or more of the following systems of measurement: Metric ("Système International"), United States or British Units, as required by the country in which the product is sold; for British Units, units of capacity measurement shall be used.

7.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

7.5 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

7.6 Lot Identification

Each container shall be embossed or otherwise permanently marked in code or in clear to identify the producing factory and the lot.

7.7 Additional Requirements

The following additional specific provisions shall apply:

7.7.1 No fruit or fruit nectar may be represented pictorially on the label except mangoes or mango nectar.

*[*7.7.2 When the product contains honey the declaration "contains honey" shall be in close proximity to the name of the product.*]*

7.7.3 Where mango nectar requires to be kept under conditions of refrigeration, there shall be information for keeping and, if necessary, thawing of the product.

7.8 Bulk Packs

In the case of mango nectar in bulk, the information required by Sections 7.1.1 to 7.7.3 shall either be given on the container or in accompanying documents except that the name of the product and the name and address of the manufacturer or packer should appear on the container. However, the name and address of the manufacturer or packer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

8.1 Taking of Sample and Expression of Results as m/m

According to the IFJU method No. 1, 1968, Determination of relative density and the IFJU General Sheet, 1971, Conversion of analytical results from m/v (g/l, mg/l) to m/m (g/kg, mg/kg) and the reverse.

8.2 Test for Fermentability

According to the IFJU method No. 18, 1974, Fermentation Test. Results are expressed as "positive" or "negative".

8.3 Determination of Minimum Content of Fruit Ingredient (To be elaborated)

8.4 Determination of Sugars

According to the IFJU method No. 4, 1968, Determination of sugar (Luft-Schoorl method). Results are expressed as % m/m.

*[*8.5 Determination of Honey

(To be elaborated)*]*

8.6 Determination of Soluble Solids

According to the IFJU method No. 8B, 1968, Estimation of soluble solids, indirect determination (see Official Methods of Analysis of the AOAC, 1975, 22.019, 31.009 and 52.010). Results are expressed as % m/m sucrose ("degrees Brix") with correction for temperature to the equivalent at 20 C.

8.7 Determination of Ethanol

According to the IFJU method No. 2, 1968, Determination of alcohol (Ethyl alcohol) [1]. Results are expressed as g ethanol/kg.

[1] To be amended by IFJU to take into account operating temperatures higher than 20 C.

8.8 Determination of Arsenic

According to the IFJU method No. 47, 1973, Determination of arsenic (Method No. A.34/F of the "Office International de la Vigne et du Vin"). Results are expressed as mg arsenic/kg.

8.9 Determination of Lead

According to the IFJU method No. 14, 1964, Determination of lead (photometric method) [2]. Results are expressed as mg lead/kg.

[2] Temporarily endorsed pending Codex General Methods.

8.10 Determination of Copper

According to the IFJU method No. 13, 1964, Determination of copper (photometric method). Results are expressed as mg copper/kg.

8.11 Determination of Zinc

According to the AOAC (1975) method (Official Methods of Analysis of the AOAC, 1975, 25.136 - 25.142, Zinc - Official First Action, Colorimetric Method (26) 3]. Results are expressed as mg zinc/kg.

[3] Temporarily endorsed pending consideration by IFJU Working Group of AAS method (AOAC 1975, 25.143-25.147) for general use in fruit juices.

8.12 Determination of Iron

According to the IFJU method No. 15, 1964, Determination of iron (photometric method). The determination shall be made after dry ashing as described in Section 5 - Remark (b). Results are expressed as mg iron/kg.

8.13 Determination of Tin (To be elaborated)

8.14 Determination of Sulphur Dioxide

According to the IFJU method No. 7, 1968, Determination of total sulphur dioxide. Results are expressed as mg S02/kg.

8.15 Determination of Water Capacity and Fill of Containers

According to the method published in the Almanac of the Canning, Freezing, Preserving Industries, 55th Edition, 1970, p. 131-132, E.E. Judge and Sons, Westminster MD (USA) [1].

[1] Reproduced in ALINORM 71/23, Appendix V. Endorsement suspended pending review of Codex methods.

APPENDIX IX

REPORT OF THE MEETING OF THE AD HOC WORKING GROUP ON METHODS OF ANALYSIS FOR FRUIT JUICES

1. The ad hoc Working Group on Methods of Analysis for Fruit Juices met on 26 June 1978 in Geneva during the 13th Session of the Joint ECE/Codex Alimentarius Group of Experts on Standardization of Fruit Juices under the Chairmanship of Professor Dr. H. Woidich. The participants were:

Professor Dr. H.J. Bielig, Mr. N.G. Bunton, Mrs. B. Dix, Mr. P. Dupaigne Mrs. E. Lindström, Professor Dr. J. Royo-Iranzo, Mr. M. Schobinger, Mr. R.L. Symeon, Dr. R.w. Weik and Professor Dr. H. Woidich (see also List of Participants)

2. The Chairman informed the Group that the methods of analysis for fruit juices contained in Conference Room Document No. 1 to the 12th Session of the Group of Experts had been submitted to the 10th Session of the Codex Committee on Methods of Analysis (CX/MAS 77/7). That Committee had examined the 16 proposed methods and endorsed all of them except two, partly with minor amendments which related to the 1975 Edition of the Handbook of the AOAC.

3. The above methods have been endorsed for the following standards at Step 9: Concentrated Apple Juice, Concentrated Orange Juice, Grape Juice, Concentrated Grape Juice, Sweetened Concentrated Labrusca type Grape Juice, Pineapple Juice and Non-pulpy Blackcurrant Nectar. They have subsequently been adopted by the 12th Session of the Codex Alimentarius Commission. The methods have also been endorsed for the following draft standards: Blackcurrant Juice, Concentrated Blackcurrant Juice and Pulpy Nectars of Certain Small Fruits.

4. No agreement had been reached on the determination of tin (an ISO Recommendation) and on the method for determination of water capacity and fill of containers (paras 48-67 of ALINORM 78/23).

5. The two latter methods had also not been incorporated in the Handbook of Analytical Methods of the International Federation of Fruit Juice Producers. It was expected that new and better methods would be available for the next session of the Group.

6. It was noted that the method for the determination of lead had been temporarily endorsed pending the development of Codex General Methods. It was further noted that the methods for the determination of ethanol, zinc and L-ascorbic acid would be reviewed and reconsidered by the Analytical Commission of IFJU. The Analytical Commission would also continue its work on methods still under elaboration for incorporation into the Codex Standards for Fruit Juices.

7 The Chairman informed the Group of the request of the Codex Committee on Methods of Analysis that Codex Commodity Committees should submit methods of analysis already at an early stage of the development of these standards.

8. The Group decided that the appropriate methods of analysis already accepted for other nectars should be incorporated into the Draft Standards for Nectars of Certain Citrus Fruits and for Mango Nectars and submitted to the Codex Committee on Methods of Analysis and Sampling for endorsement.