BESCHWERDEKAMMERN PATENTAMTS

BOARDS OF APPEAL OF OFFICE

CHAMBRES DE RECOURS DES EUROPÄISCHEN THE EUROPEAN PATENT DE L'OFFICE EUROPÉEN DES BREVETS

Internal distribution code:

- (A) [] Publication in OJ
- (B) [] To Chairmen and Members
- (C) [] To Chairmen
- (D) [X] No distribution

Datasheet for the decision of 24 February 2017

Case Number: T 0247/11 - 3.3.08

Application Number: 99952637.9

Publication Number: 1127158

IPC: C12Q1/68

Language of the proceedings: EN

Title of invention:

USE OF DNA IDENTIFICATION TECHNIQUES FOR THE DETERMINATION OF GENETIC MATERIAL OF COCOA IN FERMENTED OR ROASTED BEANS AND CHOCOLATE

Patent Proprietor:

Nestec S.A.

Opponent:

Cadbury Holdings Limited

Headword:

Roasted cocoa beans/NESTEC

Relevant legal provisions:

EPC Art. 56, 83, 84, 113(1), 114(2), 123(2) RPBA Art. 12(4), 13(1), 13(3)

Keyword:

Main and sole request - requirements of the EPC met (yes)

Decisions cited:

G 0003/14, T 0019/90, T 0455/91, T 1102/00, T 1030/06

Catchword:



Beschwerdekammern Boards of Appeal Chambres de recours

European Patent Office D-80298 MUNICH GERMANY Tel. +49 (0) 89 2399-0 Fax +49 (0) 89 2399-4465

Case Number: T 0247/11 - 3.3.08

D E C I S I O N
of Technical Board of Appeal 3.3.08
of 24 February 2017

Appellant: Cadbury Holdings Limited

(Opponent) Cadbury House Sanderson Road

Uxbridge, Middlesex UB8 1DH (GB)

Representative: Ward, David Ian

Marks & Clerk LLP

Alpha Tower Suffolk Street Queensway

Birmingham B1 1TT (GB)

Respondent: Nestec S.A.

(Patent Proprietor) Avenue Nestlé 55

1800 Vevey (CH)

Representative: Truscott, Glyn

Elkington and Fife LLP

Prospect House 8 Pembroke Road

Sevenoaks, Kent TN13 1XR (GB)

Decision under appeal: Decision of the Opposition Division of the

European Patent Office posted on 24 November 2010 rejecting the opposition filed against European patent No. 1127158 pursuant to Article

101(2) EPC.

Composition of the Board:

Members: P. Julià

D. Rogers

- 1 - T 0247/11

Summary of Facts and Submissions

- I. European patent No. 1 127 158 with the title "Use of DNA identification techniques for the determination of genetic material of cocoa in fermented or roasted beans and chocolate", was granted on European patent application No. 99 952 637.9, which had been filed as international application under the PCT and published as WO 00/28078. The patent was granted with nine claims. Claims 1 to 3 as granted read as follows:
 - "1. Process for obtaining DNA from fermented/roasted cocoa beans comprising the steps of:

providing cocoa material; grounding the material in liquid nitrogen; homogenizing, filtrating and centrifuging said material to obtain a pellet; resuspending the pellet and lysing; extracting the lysate; and precipitating DNA.

- 2. Use of the DNA obtained by the process according to claim 1 for a DNA detection technique for the determination of genetic material of cocoa in fermented and/or roasted beans and/or chocolate.
- 3. The use according to claim 2, wherein the DNA detection technique is selected from the group consisting of PCR, RAPD, RFLP or microsatellite identification."

Claims 4 to 9 related to specific embodiments of claim 2.

- 2 - T 0247/11

- II. An opposition to the grant of the patent was filed relying on the grounds for opposition under Article 100(a) EPC in conjunction with Articles 54 and 56 EPC, and Articles 100(b) and 100(c) EPC.
- III. In a decision under Article 101(2) EPC posted on 24 November 2010, an opposition division found that none of the grounds for opposition prejudiced the maintenance of the patent as granted and, accordingly, rejected the opposition.
- IV. The opponent (appellant) lodged an appeal against the decision of the opposition division and submitted a statement setting out the grounds of appeal.
- V. The patent proprietor (respondent) replied to the statement of grounds of appeal. Together with the reply, the respondent filed new documentary evidence and two sets of amended claims as a first and second auxiliary request.
- VI. Further submissions were made by the appellant and the respondent requested not to admit them into the appeal proceedings. As a subsidiary request, both parties requested oral proceedings.
- VII. The board summoned the parties to oral proceedings. In a communication attached to the summons, the parties were informed of the board's provisional, non-binding opinion on some issues to be discussed at the oral proceedings.
- VIII. On 6 January 2017, the respondent replied to the board's communication and submitted three sets of claims as auxiliary requests 3 to 5.

- 3 - T 0247/11

- IX. On 17 January 2017, the appellant, without making any substantive submission, informed the board that it did not intend to attend the scheduled oral proceedings.
- X. Oral proceedings were held on 24 February 2017 in the absence of the appellant. During the proceedings, the respondent re-submitted auxiliary request 5 as its main request and withdrew all its other claim requests.
- XI. Claim 1 of the main request reads as follows:
 - "1. Use of the DNA obtained by the process for obtaining DNA from roasted cocoa beans comprising the steps of:

providing roasted cocoa beans or chocolate; grounding the roasted cocoa beans or chocolate in liquid nitrogen;

homogenizing, filtrating and centrifuging said ground roasted cocoa beans or ground chocolate to obtain a pellet;

resuspending the pellet and lysing; extracting the lysate; and precipitating DNA,

for a DNA detection technique for the determination of genetic material of cocoa in roasted beans or chocolate, wherein the DNA detection technique is PCR."

Claims 2 to 7 read as granted claims 4 to 9 with adapted dependencies.

- XII. The following documents are cited in this decision:
 - (5): M.D. Perry et al., Plant Molecular Biology Reporter, March 1998, Vol. 16, No. 1,

- 4 - T 0247/11

pages 49 to 59;

- (7): R. Greiner et al., Zeitschrift für Ernährungswissenchaft, 1997, Vol. 36, No. 2, pages 155 to 160;
- (10): A.M.A. Van Hoef et al., Food Additives and Contaminants, October 1998, Vol. 15, No. 7, pages 767 to 774;
- (18): R. Meyer, Food Control, December 1999, Vol. 10, pages 391 to 399;
- (20): A. Gasch et al., in "Foods Produced by Means of Genetic Engineering. 2nd Status Report", edited by G.A. Schreiber and K.W. Bögl, Berlin 1997, pages 90 to 99.
- XIII. The submissions made in writing by the appellant concerning issues relevant to this decision were essentially as follows:

Article 123(2) EPC

The process for obtaining DNA from roasted cocoa beans according to claim 1 comprised all steps of the methods disclosed in Examples 1 and 2 of the application as filed, but it was not limited to the specific steps, nor to the specific parameters and working conditions used therein. Claim 1 was thus an unallowable generalisation of the process described in these examples and had no basis in the application as filed.

Article 83 EPC

The process as defined in claim 1 did not require the purification of the precipitated DNA. Thus, claim 1 encompassed processes having no DNA purification step. However, the patent application did not provide any disclosure that enabled such a possibility. Nor did the patent application provide any information on methods for obtaining DNA from roasted cocoa beans other than those disclosed in Examples 1 and 2. Only the exemplified methods were sufficiently disclosed to enable a skilled person to reproduce the alleged invention. As such, the invention as claimed in claim 1 was not sufficiently disclosed over the whole scope of the claim.

Article 56 EPC

The closest state of the art, document (5), belonged to the same technical field as the patent, namely the extraction and analysis of cocoa DNA. This document described a process for obtaining cocoa DNA with the steps specified in claim 1, and also mentioned the problems with the analysis of cocoa DNA caused by the high levels of polyphenols and polysaccharides in cocoa extracts.

Whilst in document (5) the DNA was extracted from cocoa leaves, in claim 1 the DNA was obtained from roasted cocoa beans. Starting from document (5), the technical problem to be solved was the provision of a method for the identification of DNA from processed (roasted) cocoa beans. This problem was not solved over the whole scope of the claims.

- 6 - T 0247/11

The DNA extraction method in claim 1 was not limited to the methods disclosed in Examples 1 and 2 of the patent but covered, in general terms, other unspecified DNA extraction methods for which there was no evidence on file to show that they solved the formulated problem. Claim 1 comprised DNA extraction methods in which the cocoa DNA was not even purified. Given the problems described in the prior art regarding the inhibition of PCR by compounds found in cocoa, the DNA from roasted cocoa beans could not be adequately identified using those methods.

Moreover, a skilled person would have arrived at the alleged invention in an obvious manner by merely following the teachings of document (5). There was no reason why a skilled person could not have applied the method described in document (5) to roasted cocoa beans with a reasonable expectation of success.

Contrary to the findings in the decision under appeal, there was no prejudice in the art against the analysis of DNA from roasted (processed) cocoa beans. The documents cited in support of such a prejudice were all post-published documents from either the patent proprietor or a manufacturer of a DNA purification system encouraging potential customers to make use of the advertised system. None of them provided an independent verification of a prejudice in the art. Document (20), the sole document cited in this context pre-dating the priority date of the patent, did not represent the prevailing opinion in the field. Document (20) described DNA extraction and analysis protocols used on a wide variety of food products and acknowledged the presence of PCR inhibitors in certain foodstuff as one of the main drawbacks. However, a number of strategies for removal or alleviation of the

- 7 - T 0247/11

effect of such inhibitors were already described in document (20) itself. Indeed, document (5) already identified that drawback in connection with cocoa leaves and provided a simple technique which delivered unsheared, pure genomic DNA. Thus, far from a prejudice against analysis of DNA from cocoa, the prior art merely acknowledged the presence of a difficulty for which well-known solutions were already available.

XIV. The submissions made by the respondent concerning issues relevant to this decision were essentially as follows:

Main Request Admission into the appeal

The main request was filed as auxiliary request 5 in reply to the board's communication pursuant to Article 15(1) RPBA and addressed comments made therein.

Article 123(2) EPC

Claim 1 did not involve an unallowable generalization, but merely specified features that were directly and unambiguously derivable from the application as filed.

Article 83 EPC

When carrying out the invention as defined in claim 1, the skilled person was not constrained to the specific steps defined in the claim, but could take additional purification steps, if necessary. The teaching of the patent application was reproducible and its disclosure was enabling. According to the established case law, an objection of lack of sufficient disclosure was justified only if there were serious doubts

- 8 - T 0247/11

substantiated by verifiable facts (*inter alia*, T 19/90, OJ EPO 1990, 476). However, the appellant had submitted no evidence at all in this regard and had thus not discharged its burden of proof.

Article 56 EPC

It was stated in document (5) that high levels of polysaccharides and polyphenolic compounds were present in cocoa plants. These compounds were known to be PCR inhibitors and to render cocoa material unsuitable for applying DNA detection techniques. The method for extracting cocoa DNA described in document (5) delivered unsheared, pure genomic cocoa DNA subsequently used in two DNA detection techniques, but the starting cocoa material was young, pale green cocoa leaves (freshly cocoa seedling leaves). This material was known to contain low levels of secondary metabolite products such as the PCR inhibitors, polysaccharides and polyphenolic compounds (tannins). Neither document (5) nor any other prior art document on file suggested extracting DNA from cocoa beans, let alone from roasted cocoa beans or chocolate.

Starting from document (5), the technical problem to be solved was the provision of an alternative cocoa starting material as source for DNA for use in a DNA detection technique. This problem was solved by the claimed subject-matter over the whole breadth of the claims.

It was well known in the art that the more processed a starting material was, the more likely it was that a skilled person would encounter difficulties trying to obtain DNA suitable for detection techniques, such as PCR. As stated in document (7), processing was one of

- 9 - T 0247/11

the main factors influencing the accessibility of DNA suitable for detection assays. As described in documents (20) and (10), the difficulties were particularly relevant for cocoa because of the high levels of PCR inhibitors in this material. Document (10) stated that, in general, the more complex the composition of a food product was, the more likely it was that potent PCR inhibitors were present in the DNA extract. This was confirmed by, inter alia, postpublished document (18) dealing with the quality of DNA extracted from different (processed) products using several DNA isolation methods. It was stated in this document that DNA from processed food was highly degraded and that the presence of polysaccharides, polyphenols and other secondary products was a major problem in some food matrices, such as chocolate. Thus, the selection of roasted cocoa beans and chocolate as starting material was not obvious to a skilled person. Moreover, in the light of the teachings of the prior art and the common general knowledge, the skilled person could not have a reasonable expectation of success.

- XV. The appellant requested in writing that the decision under appeal be set aside and the patent be revoked.
- XVI. The respondent requested that the decision under appeal be set aside and the patent be maintained upon the basis of the main request filed at the oral proceedings before the board on 24 February 2017.

- 10 - T 0247/11

Reasons for the Decision

Article 113(1) EPC

- 1. By its decision neither to attend the scheduled oral proceedings nor to submit substantive arguments in writing, the appellant deprived itself of the opportunity to comment on the admission and compliance with the EPC of auxiliary requests 3 to 5 filed by the respondent in reply to the board's communication (cf. points IX and X supra).
- 2. At the oral proceedings, the board decided to admit auxiliary request 5 into the appeal proceedings and, subsequently, the respondent made this request its main and sole request (cf. point X supra). While there are no submissions from the appellant as regards the present main request, the objections raised by the appellant against the former main request and auxiliary requests 1 and 2, as far as they apply also to the present main request, have been considered by the board when arriving at a decision on the appeal.

Main request

Admission into the appeal proceedings

3. The present main request is a straightforward reaction to the board's provisional opinion expressed in the communication under Article 15(1) RPBA. It does not add complexity to the case or raise any issue that cannot be dealt with by the board at the oral proceedings. Therefore, the board, in exercise of its discretion, decides to admit the main request into the appeal procedure (Article 114(2) EPC, Article 13(1),(3) RPBA).

- 11 - T 0247/11

Articles 123(3) and 84 EPC

- 4. Claim 1 of the main request is derived from granted claim 2 and incorporates the wording of granted claim 1. It has been limited to roasted cocoa beans as the starting material, and to PCR as the DNA detection technique, one of the embodiments encompassed by granted claim 3 (cf. points I and XI supra). The scope of protection of the claims according to the main request does not extend beyond that of the granted claims. Thus, Article 123(3) EPC is not contravened.
- 5. Article 84 EPC is not a ground for opposition, (see G 3/14, OJ EPO 2015, 102), and the claims as granted are not open to objections under this article. The combination of the granted claims does not raise any clarity issue.

Article 123(2) EPC

- 6. The board does not share the appellant's view that the process for obtaining DNA from roasted cocoa beans of claim 1 represents an unallowable generalisation of the specific methods disclosed in Examples 1 and 2 of the application as filed (cf. point XIII supra).
- 7. Claim 1 of the application as filed, which is directed to the use of a DNA detection technique for the determination of genetic material of cocoa in fermented and/or roasted beans and/or chocolate, has no limitation as regards the method for obtaining the genetic material from any of the products specified in the claim. In the description of the application as filed, several passages refer to the use of DNA identification techniques in general for the determination of genetic material from cocoa beans (cf.

- 12 - T 0247/11

inter alia, page 1, first paragraph, and page 3, first and second paragraphs), but none of them contemplates any particular method for obtaining or extracting the DNA from cocoa beans. However, it is implicit in the application as filed that the extraction method must necessarily provide a cocoa genetic material (DNA) suitable for use in DNA detection techniques such as those specified in claim 2 of the application as filed.

- 8. Indeed, it is directly and unambiguously derivable from the application as filed that "[DNA analysis] techniques may only be applied to products/raw materials the genetic material of which has not been degraded to a substantial degree". Moreover, "... DNA destructive processing steps such that cocoa DNA cannot be used to identify and control the genetic origin of ... roasted beans and chocolate" are not appropriate if the DNA is to be used for a DNA detection technique (cf. page 2, second and fourth paragraphs of the application as filed, respectively). Therefore, such DNA destructive steps are also to be avoided in a method for obtaining or extracting DNA from cocoa beans.
- 9. The methods disclosed in Examples 1 and 2 of the application as filed are only particular methods comprising several steps which do not result in the destruction or degradation of the DNA from cocoa and provide this DNA in a form suitable for use in the DNA identification techniques. From the general disclosure of the application as filed outlined above, the skilled person also readily understands that the conditions under which these steps are carried out may be changed or modified as far as they do not result in the DNA from cocoa being destroyed or degraded to a substantial degree. Whilst the skilled person understands this

- 13 - T 0247/11

requirement to be essential for applying the DNA detection techniques to determine the DNA from cocoa, this is not the case for the exemplified specific conditions. Contrary to the appellant's view, the omission of the specific conditions of Examples 1 and 2 in claim 1 of the main request does not constitute an intermediate generalisation. The fact that claim 1 is directed to the <u>use</u> of cocoa DNA for a DNA detection technique necessarily implies that the conditions under which the preparation steps are carried out must result in cocoa DNA that is not destroyed or degraded to a substantial degree, i.e. is suitable for the intended use.

- 10. In fact, the same argument applies also to the omission in claim 1 of the purification step disclosed in the examples of the application as filed. In the board's view, appellant's objection in this respect concerns Article 84 EPC rather than Article 123(2) EPC. However, Article 84 EPC is not a ground for opposition (supra).
- 11. Since the first step of the process specified in claim 1 consists in providing "roasted cocoa beans or chocolate", the use of DNA derived from any cocoa material other than roasted cocoa beans themselves and chocolate is not encompassed by the claim. The extraction of DNA from nib (i.e. fermented, dried and roasted cotyledons of cocoa beans) and chocolate is disclosed in Example 2 of the application as filed and explicitly referred to throughout the whole application (cf. inter alia, page 1, first paragraph, and page 3, first paragraph, claim 1 of the application as filed).
- 12. Therefore, the amendments introduced into claim 1 do not contravene Article 123(2) EPC.

- 14 - T 0247/11

Article 83 EPC

- 13. For the purpose of assessing whether the requirement of Article 83 EPC is fulfilled, the board has to take into account that the skilled person has at his/her disposal not only the disclosure of the patent application itself, but also the common general knowledge in this particular field. It is undisputed that a process for obtaining cocoa DNA from roasted cocoa beans and chocolate is disclosed in Examples 1 and 2 of the patent application, and that the use of this DNA as a template in a PCR DNA amplification reaction is described in Examples 3, 5 and 6 of the patent application. Hence, the patent application teaches the skilled person how to obtain DNA suitable for the purpose specified in claim 1.
- 14. In the light of the disclosure of the patent application supplemented with the common general knowledge at the relevant date, the board considers that neither inventive skills nor an undue burden are required from a skilled person for selecting suitable working conditions and/or applying routine steps well known in the art, such as a purification step, in order to obtain the DNA from roasted cocoa beans for carrying out the PCR technique as specified in claim 1. As claim 1 is concerned, there are no serious doubts substantiated by verifiable facts that justify the appellant's objection of lack of sufficient disclosure (cf. inter alia, T 19/90, OJ EPO 1990, 476, point 3.3 of the Reasons).
- 15. As regards the objections raised by the appellant against claims 3 and 8 as granted, the board indicated in its communication that the objections had not been raised in opposition proceedings, and that the

- 15 - T 0247/11

appellant had failed to explain why they could not have been raised earlier. The appellant was further informed that the introduction of these objections in appeal would run contrary to the purpose of an appeal, namely to give a judicial decision upon the correctness of a separate earlier decision taken by the opposition division. Therefore, these objections are not admitted into the proceedings (Article 12(4) RPBA). In any case, it should be noted that the limitation to PCR as the DNA detection technique in claim 1 of the main request overcomes the objection raised against granted claim 3, and that there are no serious doubts substantiated by verifiable facts that justify the objection raised against granted claim 8 (corresponding to claim 7 of the present main request) (cf. inter alia, T 19/90, supra).

16. In view of the above, the requirements of Article 83 EPC are considered to be fulfilled.

Article 54 EPC

17. The findings in the decision under appeal on the issue of novelty (cf. pages 3-4, point 5 of the decision under appeal), which were not contested by the appellant, apply also to the present request.

Article 56 EPC

18. The present invention relates to the use of DNA identification techniques for the determination of the genetic origin of processed cocoa products, namely roasted cocoa beans and chocolate, using genetic material (DNA) obtained from said products (cf. paragraph [0001] of the patent).

- 16 - T 0247/11

- 19. Document (5), which was regarded as the closest state of the art in the decision under appeal, describes a method for extracting DNA from young, pale green leaves from six month-old cocoa plants. Reference is made throughout this document to "both juvenile and mature individuals" (cf. page 50, second paragraph), "leaves of mature plants, or from seedling leaves" (cf. page 57, first paragraph) as starting material. The objective of the authors of document (5) is "to distinguish individual varieties and to identify new and/or genetically distant clones ... [for] the establishment of successful breeding programmes" and "to identify at an early age, plants that are potential market leaders" (cf. page 58, second paragraph).
- 20. The method of document (5) includes the steps of freezing leaf tissue of cocoa plants in liquid nitrogen, grounding aliquots of the frozen leaves to a fine powder in liquid nitrogen and, when the leaf tissue begins to thaw, grounding to a gelatinous homogenate that is allowed to thaw; the homogenate is filtered under vacuum and the filtrate is further centrifuged, the pellet is resuspended to ensure a high yield of DNA which is extracted from the nuclear pellet by a lysis buffer, precipitated and further purified (cf. page 51, under the heading "DNA extraction"). According to document (5), the cocoa DNA obtained by this method is of high purity, "unsheared, with minimal contamination by polysaccharide and phenolic compounds" (cf. page 49, abstract, pages 54 and 57, first paragraphs). The high levels of these two types of compounds in cocoa are mentioned in document (5) as an important difficulty for the effective isolation of DNA from cocoa plants, a pre-requisite for an evaluation of genomic variation (cf. page 50, third paragraph). This difficulty is overcome by the method

- 17 - T 0247/11

described in document (5) and, with the cocoa DNA obtained by this method, two fingerprinting techniques, namely random amplified polymorphic DNA (RAPD) and amplified fragment length polymorphism (AFLP $^{\text{TM}}$) analysis, are evaluated for their suitability in distinguishing cocoa varieties. These two techniques are selected from other fingerprint techniques known in the art, including PCR of 5S ribosomal spacer regions and of short sequence repeats (cf. page 50, fourth paragraph).

- 21. Whilst the method of document (5) is aimed at determining cocoa genetic material for establishing breeding programmes, and uses as starting material cocoa plants, preferably seedling leaves, the purpose of the invention as claimed is to determine the genetic origin of processed cocoa products and therefore uses as starting material for obtaining genetic material the processed product, namely roasted cocoa beans and chocolate.
- 22. Starting from document (5), the technical problem to be solved is the provision of an alternative starting material for identifying the genetic material of cocoa applying detection techniques such as PCR.
- 23. As shown by the examples in the patent, the use of roasted cocoa beans and chocolate as starting material solve this problem. The arguments put forward by the appellant to substantiate its objection that the technical problem is not solved over the whole breadth of the claims are essentially the same as those put forward under Article 83 EPC (cf. point XIII supra), and have been dealt with by the board under this article (cf. points 13 to 16 supra). In the absence of cogent arguments to the contrary, the technical problem

- 18 - T 0247/11

is thus considered to be solved over the whole scope of the claims.

- 24. It remains to be assessed whether the use of roasted cocoa beans and chocolate as starting material to obtain cocoa DNA for the use specified in claim 1 was obvious to a person skilled in the art at the relevant date. Cocoa beans are mentioned in document (5) in the context of obtaining seedlings of the cocoa plant (cf. paragraphs bridging pages 50 and 51), but not as a possible starting material for obtaining DNA for use in a DNA detection technique. There is in fact no indication or suggestion in document (5) that could have led a skilled person to seek alternative cocoa materials in order to obtain DNA for applying DNA detection techniques and, in particular, the PCR technique.
- 25. It may be accepted that the normal task of a skilled person is to seek alternatives, to be constantly occupied with the elimination of deficiencies, with the overcoming of drawbacks and with the achievement of improvements of known devices and/or products (cf. inter alia, T 1030/06 of 17 December 2008, point 20 of the Reasons; T 1102/00 of 1 June 2004, point 14 of the Reasons; T 455/91, OJ EPO 1995, 684, point 5.1.3.2 of the Reasons). However, according to the established case law of the Boards of Appeal, a skilled person would choose from the available alternatives only those courses of action which offered a reasonable expectation of success (cf. decisions cited in "Case Law of the Boards of Appeal of the EPO", 8th edition 2016, chapter I.D.7.1, page 185).
- 26. In the present case, the skilled person had no reasonable expectation of success. It is apparent from

- 19 - T 0247/11

the evidence on file that the general understanding in the art at the relevant date was that the more processed a food product is, the less likely are the chances to obtain DNA suitable for applying DNA detection techniques, such as PCR, because food processing often comprises DNA destructive steps. Document (7) confirms that "... food processing is one of the main factors influencing the accessibility of appropriate nucleic acid substrate for PCR reactions negatively. During food processing fragmentation of DNA could occur ... Moreover, food processing may lead to a complete degradation or removal of the DNA" (cf. page 156, left-hand column, last paragraph). The process steps involved in the preparation of roasted cocoa beans - which include fermentation, drying and roasting of the cocoa beans - are regarded generally as DNA destructive processing steps.

- As regards processed cocoa in chocolate, it was well known in the art that potential problems due to the food matrix affected the PCR detection technique.

 According to document (7), "[t]he differences in [PCR] sensitivity may be due to the existence of different food matrices and the application of different DNA isolation procedures" (cf. sentence bridging pages 158 and 159). Document (20) reports a dramatic inhibition of the PCR amplification when using DNA extracted from cocoa powder as template (cf. paragraph bridging pages 96 and 97, in particular last sentence in first paragraph of page 97).
- 28. The observations made in these prior art documents are confirmed by post-published documents on file describing different DNA extraction methods and the problems for PCR analysis encountered with some food matrices, such as chocolate (see, inter alia, document

- 20 - T 0247/11

- (18), page 394, left-hand column, last paragraph but one, page 397, paragraph bridging right and left columns).
- 29. For these reasons, the board considers that the selection of roasted cocoa beans and chocolate as alternative starting cocoa material to obtain DNA suitable for applying the PCR DNA detection technique was not obvious to a skilled person in the art at the priority date. The selection of this material would only have been made with hindsight knowledge of the claimed invention.
- 30. Therefore, the main request fulfils the requirements of Article 56 EPC.

- 21 - T 0247/11

Order

For these reasons it is decided that:

- 1. The decision under appeal is set aside.
- 2. The case is remitted to the opposition division with the order to maintain the patent upon the basis of claims 1 to 7 of the main request received during the oral proceedings of 24 February 2017, and a description to be adapted.

The Registrar:

The Chairwoman:



A. Wolinski

M. R. Vega Laso

Decision electronically authenticated