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**Datasheet for the decision
of 26 November 2014**

Case Number: T 0682/10 - 3.3.01

Application Number: 95938189.8

Publication Number: 0789568

IPC: A61K31/35, A01N43/16,
C07D313/00

Language of the proceedings: EN

Title of invention:

ANTINEOPLASTIC COCOA EXTRACTS, METHODS FOR MAKING, USING

Patent Proprietor:

Mars Incorporated

Opponents:

Natraceutical S.A.
Cadbury Holdings Limited
Barry Callebaut AG
Müller-Boré & Partner
The Hershey Company
NESTEC S.A.
Kraft Foods Global, Inc.

Headword:

Procyanidin oligomers/MARS

Relevant legal provisions:

EPC Art. 100(a), 54(2)

Keyword:

Novelty - (no)

Decisions cited:

T 0411/89, G 0001/92

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 0682/10 - 3.3.01

D E C I S I O N
of Technical Board of Appeal 3.3.01
of 26 November 2014

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 15 January 2010
revoking European patent No. 0789568 pursuant to
Article 101(3)(b) EPC.**

Composition of the Board:

Chairman A. Lindner
Members: C. M. Radke
L. Bühler

Summary of Facts and Submissions

I. Seven oppositions were filed against the grant of European patent No. 789 568.

The oppositions were directed against the patent as a whole and were based on grounds under Article 100(a) (alleged lack of novelty and inventive step as well as lack of patentability under Article 52(2)(a) EPC), (b) and (c) EPC.

II. The documents cited during the opposition proceedings include the following:

- (D1) J. Clapperton et al., XVIth International Conference "Groupe Polyphenols", Lisboa, July 13-16, 1992, proceedings, vol. 16, six pages
- (D52) DE-A-20 55 030
- (D128) M. A. Kelm et al., Journal of Agricultural and Food Chemistry, vol. 54 (2006), 1571-1576.

III. The opposition division revoked the patent.

In particular, the opposition division decided that

- the subject-matter of the claims of the main request and of the first, third and fourth auxiliary requests then on file lacked novelty in view of document (D1); and that
- grounds under Article 100(b) EPC prejudiced the maintenance of the patent on the basis of the second auxiliary request.

IV. The patent proprietor has appealed against this decision.

V. The present claims are

- claims 1-6 of the main request,
- claims 1-6 of the first auxiliary request and
- claims 1-6 of the second auxiliary request,

all filed under cover of the statement dated 25 May 2010 setting out the grounds for appeal. These claims are identical to those of the main request and first and second auxiliary requests, respectively, on which the decision under appeal is based.

a) Claim 1 of the **main request** reads as follows:

"1. A solid composition suitable for oral administration which comprises a suitable carrier and a cocoa extract containing at least one cocoa procyanidin oligomer 4 to 12."

b) Claim 1 of the **first auxiliary request** reads as follows (emphasis added by the board):

"1. A solid composition suitable for oral administration which comprises a suitable carrier and a cocoa extract, **the cocoa extract being obtained by solvent extraction and** containing at least one cocoa procyanidin oligomer 4 to 12."

c) Claim 1 of the **second auxiliary request** reads as follows:

"1. A solid composition suitable for oral administration which comprises a suitable carrier and a cocoa extract comprising cocoa procyanidin oligomer 12."

VI. The additional documents filed during the appeal proceedings include the following:

(D135) US-A-5 252 349

(D143) European Pharmacopoeia, 2nd edn., two pages of the index and pages 765, 765-2 - 765-4

(D145) 4th declaration of Wolfram Steffan, dated 26 October 2010, nine pages, filed under cover of Respondent 7's letter dated 14 December 2010

(D146) M. A. F. Jalal and H. A. Collin, Phytochemistry, vol. 16 (1977), 1377-1380

(D150) Second declaration of William J. Hurst, signed on 22 October 2014, five pages and exhibits A to F, filed under cover of Respondent 5's letter dated 23 October 2014.

VII. The appellant's arguments, as far as relevant for the present decision, may be summarised as follows:

Interpretation of the claims

The opposition division was wrong not to interpret the word "extract" as "solvent extract" as understood from documents (D135), (D143) and (D52). It is evident to the person skilled in the art that an "extract" in general, and an "extract obtained by solvent extraction" in particular can only mean a product obtained by extraction with a solvent. The wording of the claims requires that the cocoa extract contains the procyanidin oligomers; this wording excludes that the cocoa extract consists of these oligomers. It is also evident from the claims that the carrier has to be added to the composition of which the cocoa extract is just one component. The description makes it clear that the solid formulation has to be a capsule, tablet, pill

or the like. Therefore, cocoa powder or cocoa beans as such cannot be considered as a composition as defined in the present claims.

Novelty

The subject-matter of the claims is novel, as document (D1) does not disclose a composition containing a solvent extract of cocoa and a carrier, due to the fact that (D1) does not teach to add a carrier. Moreover, (D1) fails to disclose the extraction process in detail and thus is to be considered as a non-enabling disclosure. The experiments (D145) are not relevant as they were conducted with different types of cocoa beans. The procyanidin content of cocoa beans mainly depends on the genotype of the cocoa and on the climatic and soil conditions of the location where it is grown. Finally, document (D1) does not disclose that oligomer 12 is present in the extracts. There is no evidence that it was possible to detect and analyse oligomer 12 before the priority date of the patent in suit. The method of analysis disclosed in document (D128) was developed after the present priority date.

VIII. The respondents' arguments, as far as relevant for the present decision, may be summarised as follows:

Interpretation of the claims

The documents cited by the appellant do not provide a definition for the word "cocoa extract". According to paragraph [0004] of the patent in suit, any compounds within cocoa could be considered as an extract, i.e. the pure procyanidins. Hence, the word "extract" has no specific meaning. Even the term "extract obtained by

solvent extraction" was a mere product-by-process feature. The starting material to be extracted cannot be distinguished from a composition consisting of the extract and the residue of the extraction. Due to the fact that the "suitable carrier" is not defined in the claims, any ingredient in cocoa beans or cocoa powder other than the procyanidins may be considered as a carrier. The claims do not require that the carrier is added.

Novelty

The subject-matter of the claims is not novel in view of document (D1). This document discloses in detail the extraction of defatted cocoa powder under the heading "*Analysis of Flavanols and Procyanidins*" on page 2. Furthermore, it discloses the extraction of defatted, unfermented, freeze-dried cocoa beans on page 2 under the heading "*Isolation of Procyanidins*" where the details of the extraction process are disclosed by reference to document (D146). Figure 3 on page 4 and table 1 on page 3 confirm that the procyanidins extracted from cocoa beans of the genotype UIT-1 grown in Malaysia contain oligomers 4 to 8. Document (D145) confirms that the extract also contains procyanidin oligomer 12, as do the examples of the patent in suit. Post-published document (D128) shows that even procyanidin oligomers 14 can be detected in such an extract. Hence, the cocoa powder obtained from these UIT-1 beans, and even the beans as such, deprive the subject-matter of claim 1 of all the requests of novelty.

- IX. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of the main request or,

alternatively, on the basis of the claims of the first or second auxiliary request, all filed with the statement of grounds for appeal dated 25 May 2010. If the board were to consider refusing any of the requests for a reason that had not been fully considered by the opposition division, remittal to the opposition decision was requested. The appellant further requested that the declaration of Mr. Hurst including the exhibits filed by respondent 5 with letter dated 23 October 2014 should not be admitted into the appeal proceedings.

Respondent 6 requested that the appeal be dismissed. Respondents 2, 5 and 7 had requested in writing that the appeal be dismissed. Respondent 7 had additionally requested remittal to the department of first instance should the board come to the conclusion that the claims of the main request met the requirements of Articles 123(2) and 54 EPC.

Respondents 1, 3 and 4 neither replied to the statement setting out the grounds for appeal, nor formulated any requests during appeal.

- X. Oral proceedings before the board took place on 26 November 2014. Respondents 1 to 5 and 7 had been duly summoned to the oral proceedings but did not attend as announced in their letters dated 6 October 2014, 9 September 2014, 16 October 2014, 1 August 2014, 23 October 2014 and 23 September 2014, respectively. The oral proceedings were thus continued in the absence of the duly summoned respondents 1 to 5 and 7 in accordance with Rule 115(2) EPC.

At the end of these proceedings, the chairman announced the decision of the board.

Reasons for the Decision

1. The appeal is admissible.
2. Appellant's request not to admit the declaration of Mr. Hurst including the exhibits (i. e. document (D150)) filed by respondent 5 with letter dated 23 October 2014

This request was first made during the oral proceedings before the board. However, respondent 6 stated that it did not intend to rely on document (D150), or on the arguments relating to that document set out in the letter mentioned above, when presenting its arguments on novelty with respect to the disclosure of document (D1). As neither document (D150) nor the arguments raised in the letter dated 23 October 2014 were relevant for the outcome of this decision, it was not necessary to decide on this request.

3. Interpretation of the claims

Claim 1 of the main request and of the second auxiliary request relate to a

"solid composition for oral administration which comprises a suitable carrier and a cocoa extract" containing at least one cocoa procyanidin oligomer of a degree of polymerisation defined in the claim (see points V(a) and (c) above).

Claim 1 of the first auxiliary request further specifies that the extract is "obtained by solvent extraction" (see point V(b) above).

3.1 The features "cocoa extract" and "cocoa extract obtained by solvent extraction"

Whereas the appellant was of the opinion that these features required that the "extract" was obtained by solvent extraction, the respondents considered anything obtainable by extraction of cocoa and containing the respective procyanidin oligomers to be an "extract" in the sense of the present claims.

Claim 1 of each of the present sets of claims is directed to a solid composition, i. e. to a product. According to the appellant's argumentation, a component of this product, namely the "extract", is characterised by the process by which it is obtained, namely by solvent extraction. As the reference to the process serves only to characterise the product, such a product-by-process feature has to be interpreted as relating to the product as such. This means that, when assessing patentability, the respective product (namely the "extract") is considered to comprise everything which may be obtained by the respective process (see T 411/89 of 20 December 1990, point 2.2 of the reasons).

Hence, any component may be considered as the "cocoa extract" if it may be obtained by extraction from cocoa, no matter whether the obtained extract is purified or not. The extract is to contain "at least one cocoa procyanidin oligomer 4 to 12". The patent in suit states that the "extracts can be purified; for instance, by gel permeation chromatography or by preparative High Performance Liquid Chromatography (HPLC) techniques or by a combination of such techniques" (see page 5, lines 21-22 in paragraph [0010]). Purification of said extract may yield the pure procyanidin oligomer(s). For these

reasons, the cocoa procyanidin oligomers 4 to 12 as such are to be considered as a "cocoa extract". This is in line with page 2, line 25, in paragraph [0004] of the patent in suit which refers to "cocoa extracts, e.g. compounds within cocoa". In view of this, it is irrelevant whether or not the person skilled in the art would consider as extracts only those products which were obtained by solvent extraction.

3.2 The feature "composition ... which comprises a suitable carrier and a cocoa extract"

3.2.1 The appellant was of the opinion that it was evident from the description that this feature required that

- a carrier was added to the composition,
- the composition was in the form of capsules, tablets, pills or the like, and
- cocoa beans as such could not be considered as a composition according to claim 1.

3.2.2 Claim 1 of each of the present requests as such neither requires that the carrier has to be added nor specifies the form of the composition.

The disclosure "the cocoa extract may be in admixture with a suitable carrier", on which the appellant relied (see page 13, lines 2-6, of the application as filed), refers to injectable liquid compositions, whereas the present claims are directed to solid compositions. In addition, the word "admixture with a suitable carrier" does not clearly disclose that a carrier is added; it only requires that such a carrier is present.

Hence, there is no basis in the claims, even interpreted in the light of the description, for the requirement that the carrier has to be added.

As far as the form of the composition is concerned, the original description does not imply that said form is to be limited in any way. The part of the description relied on by the appellant reads as follows: "Examples of compositions of the invention include solid compositions for oral administration such as capsules, tablets, pills and the like, as well as ...". Therefore, it just gives examples of such forms and can by no means be interpreted as limiting (see page 12, lines 24-30, of the application as filed).

Hence, even the description cannot serve as a basis for a narrow interpretation of the claims as regards the form of the composition.

- 3.3 To sum up, the board comes to the conclusion that the present claims are not limited by the way in which the "extract" was produced. The pure procyanidin oligomer(s) may be considered as the extract. Nor are the claims limited by a certain form of the composition or by a certain type of carrier, as long as the composition is solid and suitable for oral administration.

Unfermented cocoa beans are solid and suitable for oral administration. They contain pure procyanidin oligomer(s), i.e. an extract as defined in the present claims. Any other constituent of the cocoa beans may be considered as a carrier in the sense of the present claims. Hence, an unfermented cocoa bean can be considered as a composition in the sense of the present claims as long as it contains the procyanidin oligomer(s) specified in the claims.

4. Novelty

- 4.1 Document (D1) does not contain numbered pages. In the following, reference is made to page numbers starting with page 1 containing the title and the summary.

Document (D1) discloses the extraction of procyanidins from defatted, unfermented, freeze-dried cocoa beans, and their purification by liquid chromatography, followed by semi-preparative HPLC (see page 2, under the heading "*Isolation of Procyanidins*"). The purified isolates were analysed by LSIMS (liquid secondary ion mass spectrosscopy) (see the second complete paragraph on the second page). Table 1 on page 3 discloses the respective signals recorded for procyanidin oligomers up to the octamer.

One of the cocoa types extracted was of the genotype UIT1 grown in Malaysia (see page 1, under the headings "Summary" and "Materials and Methods *Cocoa Source and Preparation*"; see also Table 2 on page 5, the column for 0 days of fermentation).

- 4.2 This is a type of cocoa also extracted according to the examples of the patent in suit (see Table 1 on page 6 and Table 2 on the same page, the latter disclosing the procyanidin yields obtained by extracting defatted unfermented, freeze-dried cocoa beans of the genotype UIT-1 grown in Malaysia).

The appellant stated that the procyanidin content of cocoa mainly depends on the genotype of the cocoa and on the climatic and soil conditions of the location geography of the place where it is grown. Hence, the UIT-1 cocoa beans used in document (D1) must be considered to contain the same procyanidins as the ones

in the UIT-1 cocoa beans extracted according to the patent in suit.

The conclusion drawn under point 3.3 above was that an unfermented cocoa bean can be considered as a composition in the sense of the present claims as long as it contains the procyanidin oligomer(s) specified in the claims. The unfermented UIT-1 beans mentioned above contain procyanidin oligomer 12, i.e. the dodecamer (see the bottom line of Table 3 on page 10 of the patent in suit). That means that these cocoa beans also meet the requirements of claim 1 of each of the present sets of claims that the composition is

- to contain at least one procyanidin oligomer 4 to 12 (see claim 1 of the main request and of the first auxiliary request); or
- is to comprise cocoa procyanidin oligomer 12 (see claim 1 of the second auxiliary request).

4.3 As a consequence, these unfermented UIT-1 cocoa beans are considered to be compositions according to claims 1 of the main request and of the first and second auxiliary requests.

4.4 According to Article 54(1) EPC, an invention is to be considered to be new if it does not form part of the state of the art.

According to Article 54(2) EPC, the state of the art comprises everything made available to the public.

Decision G 1/92 states that the chemical composition of a product is state of the art if

- the product as such is available to the public,
and

- can be analysed and reproduced by the skilled person

(see OJ EPO 1993, 277, the answer to the first question).

- 4.5 The products as such were available from the "BAL Plantations Sdn Bhd in Malaysia" (see (D1), page 1, under the heading "Materials and Methods *Cocoa Source and Preparation*").

That these cocoa beans could be reproduced was not doubted by the parties. The board has no reason to assume that these beans could not be reproduced in the same plantation under comparable weather conditions.

The appellant did, however, argue that the person skilled in the art could not analyse the beans in such a way as to detect cocoa procyanidin oligomer 12.

- 4.5.1 According to document (D1) (see the paragraph "*Isolation of Procyanidins*" on page 2),
- defatted, unfermented freeze-dried UIT-1 cocoa beans were extracted by a modification of the method described in document (D146),
 - the procyanidins were purified by liquid chromatography on Sephadex LH-20 (28 x 2.5 cm), followed by semi-preparative HPLC on 10 μ μ Bondapak C18 (100 x 8 mm), both chromatographic techniques involving a step gradient of methanol into water,
 - the isolates thus purified were analysed by FAB-MS on a VG ZAB-T high-resolution MS system using a Liquid Secondary Ion Mass Spectrometry (LSIMS) technique in positive and negative ion mode with a cesium ion gun as the ionising source at 30 kV and

a "Magic Bullet Matrix" (1:1 dithiothreitol/
dithioerythrol) as the proton donor.

4.5.2 The extraction method mentioned above corresponds to that used in the patent in suit (see example 2, page 6, lines 20-21). The purification and analytical methods mentioned above are identical to those described in example 5 of the patent in suit (see page 9, lines 36-45) and by which the dodecamer, i.e. cocoa procyanidin oligomer 12, was detected (see page 10, bottom line in Table 3).

4.5.3 As the appellant mentioned, document (D1) does not disclose how the extraction method disclosed in document (D146) was modified, whereas the patent in suit discloses the extraction in detail. This lack of information would, however, only be relevant for the assessment of novelty in the present case if it prevented the person skilled in the art from detecting procyanidin 12 in the UIT-1 cocoa beans.

The extraction is not part of the method of analysis as such but is a step in the isolation and purification procedures used. An extraction is a standard procedure well known to the person skilled in the art, to whom it is evident that the polarity of the solvent has to be adapted to the polarity of the compound to be extracted therewith. Document (D1) reports that the major fraction of the oligomers consists of the dimers to tetramers (see page 3, the first sentence below Table 1). That means that the higher oligomers are present in lower amounts. As a consequence, the person skilled in the art would extract more cocoa beans in order to obtain an extract containing more of the higher oligomers and thus to be able to detect more easily the higher oligomers including the dodecamer.

For these reasons, the person skilled in the art knew how to modify the method of extraction disclosed in document (D146) in order to be able to detect procyanidin oligomer 12.

Hence, the compositions according to claims 1 of each of the present sets of claims could be analysed.

- 4.6 Therefore, the cocoa beans of the genotype UIT-1 were available to the public and could be analysed and reproduced by the skilled person prior to the priority date of the patent in suit.

As a consequence, the subject-matter of claim 1 of the main request and of the first and second auxiliary requests is not novel in view of document (D1).

- 4.7 The board can only decide on a request as a whole. Therefore, the main request and the first and second auxiliary requests cannot be allowed.

Sets of claims forming the basis of further auxiliary requests were not submitted.

5. Requests of the appellant and of respondent 7 for remittal to the department of first instance

- 5.1 The appellant requested remittal if the board were to consider refusing any of the requests for a reason that had not been fully considered by the opposition division.

- 5.2 Respondent 7 requested remittal to the department of first instance should the board come to the conclusion

that the claims of the main request met the requirements of Articles 123(2) and 54 EPC.

5.3 As the board has decided that the subject-matter of claim 1 of each of the requests does not meet the requirement of novelty under Article 54 EPC, the conditions under which respondent 7 requested remittal do not apply.

5.4 Lack of novelty in view of document (D1) was also the ground under Article 100(a) EPC for which the opposition division refused the main request and the first, third and fourth auxiliary requests then on file (see point III above). So this reason had been fully considered by the opposition division and the present claims are identical to those of the main request, first and second auxiliary requests, respectively, on which the decision under appeal is based.

Hence, the condition under which the appellant requested remittal is also not met.

5.5 Consequently, there was no need for the board to decide on the requests for remittal.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Schalow

A. Lindner

Decision electronically authenticated