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**Datasheet for the decision
of 15 October 2021**

Case Number: T 1461/18 - 3.3.09

Application Number: 11723868.3

Publication Number: 2467026

IPC: A23F5/04, A23F5/02, A23F5/20

Language of the proceedings: EN

Title of invention:
HEALTHY COFFEE AND METHODS OF ITS PRODUCTION

Patent Proprietor:
Tchibo GmbH

Opponents:
J.J.Darboven GmbH & Co. KG
Mondelez Global LLC

Headword:
Healthy coffee/TCHIBO

Relevant legal provisions:
EPC Art. 54, 56, 87(1)

Keyword:

Priority - identity of invention (no)

Product-by-process claim - validity of priority and novelty

Novelty - (yes)

Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 1461/18 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 15 October 2021

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 17 April 2018
rejecting the opposition filed against European
patent No. 2467026 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman A. Haderlein
Members: M. Ansorge
 F. Bostedt

Summary of Facts and Submissions

- I. The appeal was filed by opponent 1 (appellant) against the opposition division's decision rejecting the oppositions.
- II. With its notice of opposition, opponent 1 had requested revocation of the patent on the ground for opposition under Article 100(a) EPC (lack of novelty and lack of inventive step).
- III. In the present decision, reference is made to the following documents:
- E1: priority application EP 10004602
 - E2: EP 2 382 868 A1 (publication of E1)
 - E4: EP 2 186 419 A1
 - E5: "Kaffee, Der Verbrauch", Gordian-Max Rieck GmbH, pages 85 to 87 and 105 to 109
 - E12: Experimental Report filed by the proprietor (respondent)
 - E17: Experimental Report filed by opponent 1 (appellant)
- IV. The opposition division decided, *inter alia*, that the subject-matter of claim 10 as granted was novel over E2 and that the claimed subject-matter involved an inventive step in view of E4 as the closest prior art.
- V. Claims 1 and 10 as granted read as follows:
- "1. A method for producing a coffee blend, wherein the coffee blend is characterized in that a coffee drink brewed from said coffee blend under standard conditions contains at least 65 mg/L N-methylpyridinium cations

(NMP) and at least 550 mg/L chlorogenic acids (CGA), comprising the steps of

- (a) providing coffee beans of *Coffea arabica* that have been drum roasted for at least 10 minutes at 190°C to 210°C to a dark degree of 45 to 60 scale parts;
- (b) providing coffee beans of *Coffea arabica* that have been roasted by rotary fluidized bed (RFB) roasting for at most 5 minutes at 240°C to 270°C to a medium degree of 75 to 90 scale parts;
- (c) blending at least two components, wherein one blend component consists of coffee beans according to (a) and one blend component consists of coffee beans according to (b), and wherein the coffee beans according to (a) form 60 to 80% (w/w) of the blend and the coffee beans according to (b) form 20 to 40% (w/w) of the blend."

"10. A coffee blend, characterized in that a coffee drink brewed from said coffee blend under standard conditions contains at least 65 mg/L N-methylpyridinium cations (NMP) and at least 550 mg/L chlorogenic acids (CGA) obtainable by a method according to any of claims 1 to 9."

Claims 2 to 9 as granted are dependent method claims and claims 11 to 13 as granted are dependent product claims.

- VI. With its letter dated 30 July 2020, the proprietor (respondent) filed *inter alia* auxiliary request 1***.
- VII. The parties' relevant arguments, submitted in writing and during the oral proceedings before the board, are reflected in the reasoning below.

VIII. Requests

The appellant requested that the decision be set aside and that the patent be revoked in its entirety.

The respondent requested that the appeal be dismissed (main request) or that the patent be maintained on the basis of one of auxiliary requests 1, 1*, 1**, 2, 3, 4 or 5, filed with its reply to the grounds of appeal, or auxiliary request 1***, filed by letter dated 30 July 2020.

Reasons for the Decision

MAIN REQUEST (claims as granted)

1. Priority

1.1 There was common ground among the parties that the method of claims 1 to 9 as granted does not validly claim the priority of the priority application (E1).

1.2 With respect to product-by-process claim 10 as granted, the appellant argued that this claim was not entitled to the priority either, since the limitations over E1 in method claim 1 as granted, which were part of claim 10 as granted by way of the reference to claims 1 to 9 ("obtainable by a method according to any of claims 1 to 9"; emphasis added), were not disclosed in E1. In its view, for validly claiming the priority (of E1) it was necessary that all features of the product-by-process claim, including the method features, must be unambiguously disclosed in the priority application (E1).

- 1.3 The respondent argued that either claim 10 as granted validly claimed the priority of E1 (claim 10 as granted allegedly having the identical wording compared to claim 10 of E1) and thus, E2 could not be used as prior art pursuant to Article 54(3) EPC in the present case or the subject-matter of claim 10 of E2 concerned a broader (more generally defined) coffee blend which could not be novelty destroying for the more specific coffee blend of claim 10 as granted.
- 1.4 For the following reasons, the subject-matter of claim 10 as granted does not validly claim the priority of E1.
 - 1.4.1 It is noted that claim 10 as granted does not have the identical wording compared to claim 10 of E1 when taking the reference to claims 1 to 9 into account. If claim 10 as granted is written out word by word, the reference to claims 1 to 9 being taken into account, it is apparent that claim 10 differs in the specific method for producing a coffee blend.
 - 1.4.2 The coffee blend according to claim 10 as granted relates to a product-by-process claim which is defined by the product feature "coffee blend" and a feature directed to a property of a coffee drink brewed from said coffee blend under standard conditions (i.e. an indirect product feature of the coffee blend, but one which also characterises the claimed product). These features are disclosed in E1 (see claim 10).
 - 1.4.3 The crucial question to be answered is whether the product of claim 10 as granted is further characterised by the product-by-process feature "obtainable by a method according to any of claims 1 to 9", i.e. by the specific method which differs over E1. Put differently,

the issue that needs to be assessed is whether the latter product-by-process feature further limits the claimed product as such or whether it is to be interpreted as merely illustrating one way of how to obtain the claimed coffee blend without limiting it by way of clearly determinable product features.

- 1.4.4 The coffee blend disclosed in E1 differs from the one of claim 10 as granted by means of the product-by-process feature as follows.

Firstly, neither claim 1 of E1 nor its description disclose a coffee blend of two specific *Coffea arabica* beans, whereas in method claim 1 to which claim 10 as granted refers two blend components consisting of *Coffea arabica* are described. Instead, it is described on page 12, lines 1 to 5 from the bottom, of E1 that the coffee beans are not limited and, as an example beans may be from *Coffea arabica* or *Coffea canephora*, without any preference of one over the other.

Secondly, the scale part ranges of the coffee beans disclosed in e.g. claim 1 of E1 are given as "less than about 60 scale parts" (component (a)) and "about 60 to about 90 scale parts" (component (b)), whereas claim 1 as granted restricts these broad ranges to "45 to 60 scale parts" (component (a)) and "75 to 90 scale parts" (component (b)). As the scale part ranges of roasted coffee beans (roast degree) can be determined by a skilled person and represent an identifiable difference with respect to the roast degree of the coffee beans in E1 compared to claim 10 as granted, the coffee beans according to claim 1 as granted are defined in a more restricted manner compared to those of E1. This limitation, by virtue of the product-by-

process character of claim 10 as granted, is also reflected in this claim.

Thirdly, E1 fails to disclose the roasting temperature range of "190°C to 210°C" of the drum roasted coffee beans (component (a)) and the roasting temperature range of "240°C to 270°C" of the rotary fluidized bed roasted coffee beans (component (b)) required in claim 1 as granted. The specific roasting conditions, including the roasting temperatures, in combination with the selection of the type of coffee beans have a significant impact on the resulting ingredients and the sensoric properties of the roasted coffee.

1.4.5 In view of the above, it is concluded that the coffee blend of claim 10 as granted is not the same as the one disclosed in E1, but it is defined in a more restricted manner compared to the one of E1. The more specific product of claim 10 as granted is neither explicitly nor implicitly disclosed in E1. This is not only valid for the embodiment according to which the claimed coffee blend is a blend of coffee beans, but also, by analogy, for the case that it is a coffee powder blend.

1.4.6 In conclusion, claim 10 as granted does not validly claim the priority of E1 (Article 87(1) EPC). Consequently, E2 (i.e. the published version of the priority application E1) is prior art pursuant to Article 54(3) EPC in the present case and can be used in the assessment of novelty of claim 10 as granted, and E4, which was published in the priority interval, can be used in the assessment of inventive step of the claimed subject-matter.

2. Novelty over E2

2.1 The appellant submitted that the subject-matter of claim 10 as granted lacked novelty over claim 10 of E2 (i.e. the published version of the priority application E1). There was no contradiction in denying the priority claim in view of the priority application (E1) while at the same time arguing lack of novelty in view of its published version (i.e. E2). In this context, for a product-by-process claim to validly claim the priority, all features, including the method features, had to be disclosed in the priority application. However, when assessing the question of novelty of a product-by-process claim, it was only decisive to assess whether the product as such was disclosed in the prior art (claim 10 of E2), i.e. in such a situation only the product features count. Claim 10 of E2 fulfilled, therefore, all the product features of claim 10 as granted.

2.2 For the following reasons, the board does not agree with the appellant.

2.2.1 The appellant relied in its argumentation on product-by-process claim 10 of E1 to demonstrate the invalidity of the priority claim and relied on a claim having the identical wording, i.e. claim 10 of E2, in its novelty objection against claim 10 as granted.

2.2.2 As outlined under point 1.4.5 above, the board concluded that the coffee blend of claim 10 as granted was not the same as the one of claim 10 of E1, but it was defined in a more restricted manner over the one of E1.

2.2.3 There is no convincing reason why a different (disclosure) standard is to be applied when assessing the question of priority of a claim, on the one hand, and its novelty, on the other hand. Since the board has concluded that product-by-process claim 10 as granted does not validly claim the priority of E1, the reason being that claim 10 as granted was more restricted compared to the disclosure of E1, the novelty of the subject-matter of claim 10 as granted cannot at the same time be denied over the published version of the priority application (i.e. over E2).

Thus, the subject-matter of claim 10 as granted is novel over E2. The same applies to dependent claims 11 to 13 as granted.

3. Inventive step

3.1 The appellant argued that the coffee blend according to claim 10 as granted (as well as the method for producing a coffee blend of claim 1 as granted) lacked an inventive step in view of E4 as the closest prior art.

3.2 For the following reasons, the claimed coffee blend and the claimed method for producing a coffee blend involve an inventive step in view of E4 as the closest prior art.

3.2.1 E4 is a document which contains the following two separate pieces of disclosure which cannot necessarily be seen as belonging together and thus, are considered as distinct from each other:

Disclosure (i)

On the one hand, E4 discloses a method for producing a N-methylpyridinium (NMP)-containing extract containing at least 1.9% (w/w) NMP (see claim 1 of E4) and comprising the steps of:

roasting the trigonelline-containing organic material at a temperature of at least 260°C for at least 3 minutes or at a temperature of at least 230°C for at least 4 minutes;

treating the roasted trigonelline-containing organic material with hot water to obtain an aqueous extract;

treating the aqueous extract obtained in step (b) with polyamide; and

applying the polyamide-treated aqueous extract of step (c) to cation exchange chromatography to obtain a NMP-containing extract (emphasis added).

In a preferred embodiment of this disclosure (i), the NMP-containing extract is considered to be "a coffee brewed from extremely dark roasted Brasil coffee beans" (see paragraph [0007] of E4).

The board considers, however, that the extract resulting from this specific method, which comprises treating the aqueous extract obtained in step (b) with polyamide and applying the polyamide-treated aqueous extract of step (c) to cation exchange chromatography, is an artificial extract and not a brewed coffee within the meaning of the patent in suit.

Disclosure (ii)

On the other hand, E4 discloses a coffee blend comprising at least two coffees that are roasted by different methods and/or to different degrees (see for

instance claim 13 of E4). The coffee blend may be composed of 25% (wt/wt) coffee that has been roasted by fluidized bed roasting to a light to middle dark degree, and of 75% (wt/wt) coffee that has been roasted by drum roasting to a dark degree (see claim 14 of E4). This coffee blend is characterised by a low trigonelline content, a "high" chlorogenic acid content, and a "very high" N-methylpyridinium (NMP) content and niacin content, a NMP content of at least 73 µg/ml being especially preferred (see paragraph [0040] of E4).

- 3.2.2 It is this disclosure (ii) which the board considers to be the closest prior art, i.e. the combination of features which is considered the most promising starting point for assessing inventive step.
- 3.2.3 The parties agreed in that the coffee blend disclosed in E4 (see disclosure (ii) under point 3.2.1, above) fulfilled the feature "coffee drink brewed from said coffee blend under standard conditions contains at least 65 mg/L NMP", and that the content of the coffee roasted to a light to middle dark degree, i.e. 25 wt%, and the coffee roasted to a dark degree, i.e. 75 wt%, fell within the ranges required in claim 1 as granted.
- 3.2.4 The parties, however, disagreed on the issue of whether the feature "coffee drink brewed from said coffee blend under standard conditions contains at least 550 mg/L CGA" was disclosed for the coffee blend of E4 in combination with the required NMP concentration of the brewed coffee.
- 3.2.5 In the appellant's view, paragraph [0011] of E4 discloses that the NMP-containing extract may contain

up to at most 0.31 % (w/w) of CGA, this extract also including a brewed coffee (see paragraph [0007] of E4).

- 3.2.6 The board is not convinced. The disclosure in E4 dealing with the NMP-containing extract (see disclosure (i) under point 3.2.1, above) is considered to be distinct from the disclosure of the coffee blend as disclosed in claims 13 to 16 and paragraphs [0036] to [0040] of E4 (see disclosure (ii) under point 3.2.1, above). Thus, the CGA content mentioned in paragraph [0011] of E4 does not relate to the coffee blend according to claims 13 to 16 of E4 (see disclosure (ii), see point 3.2.1, above). In addition, as can be taken from paragraph [0007] of E4, the brewed coffee is made from extremely dark roasted Brasil coffee beans, which is quite different from the coffee blend described e.g. in claims 13 to 16 of E4; this also demonstrates that a distinction was made in E4 between disclosures (i) and (ii).

In addition, it is not clear from E4 whether the content of "at most 0.31 % (w/w) CGA" relates to a liquid extract or to a dry extract only, as shown in an exemplary embodiment in Table 5 of E4. Irrespective thereof, the latter content does not relate to a coffee drink brewed under standard conditions as required in claim 10 as granted, since where E4 refers to the NMP-containing extract, it is considered to relate to the artificial extract produced according to e.g. claim 1 of E4.

Thus, the indications in paragraphs [0007] and [0011] of E4 are not a suitable means for demonstrating that the coffee blend described in claims 13 to 16 of E4 (disclosure (ii)) fulfills the feature "coffee drink brewed from said coffee blend under standard conditions

contains at least 550 mg/L CGA" required in claim 10 as granted.

- 3.2.7 In addition, the appellant referred to the experimental report E17 in order to demonstrate that the CGA content required in claim 10 as granted was implicitly fulfilled by the coffee blend of E4.

Firstly, it is not known which types of coffee beans were tested in E17. Secondly, it is not known whether a *Coffea arabica* blend was tested. Thirdly, the NMP content was not analysed in E17. This third point, however, would have been essential in view of the evidence on file which shows that it is not straightforward to keep the CGA content high while at the same time having a high NMP content (see the patent, paragraph [0014]). Fourthly, no explanations were provided by the appellant as to why the coffees tested in E17 might be representative of the specific coffee blend described in E4 (see claims 13 to 16 of E4). Thus, E17 is not suited to demonstrate the CGA content of the coffee blend of E4.

- 3.2.8 In the board's view, the only text passage in E4 which could be understood as a hint to a CGA content of the coffee blend according to E4 is in paragraph [0040] of E4, which reads as follows:

"More preferably, the coffee blend is characterized by a low trigonelline content, a high chlorogenic acid content and very high N-methylpyridinium (NMP) content and niacin content." (emphasis added)

However, the rather vague term "high chlorogenic acid content" is not a clear and unambiguous disclosure of a specific CGA content of the coffee blend.

In view of the above, the board concludes that E4 does not disclose a specific CGA content of the coffee blend and it is silent with respect to the CGA content of a coffee drink brewed from said coffee blend under standard conditions.

- 3.2.9 There was disagreement among the parties how the feature "standard conditions" mentioned in claim 10 as granted (and claim 1 as granted) for brewing a coffee drink from the claimed coffee blend is to be interpreted and how it influences the definition of the claimed coffee blend as such.

The appellant was of the opinion that these standard conditions were to be interpreted in a broad manner, the patent being its own dictionary e.g. including standard conditions for direct brewing of a coffee blend in a coffee machine at a high pressure using a pump pressure of up to 20 bar (see paragraph [0027] of the patent).

- 3.2.10 The board is of the opinion that the lack of a precise definition of "standard conditions" in claim 10 as granted leads to some ambiguity with respect to the product features of the claimed coffee blend, in particular since even the patent itself mentions in paragraphs [0027] to [0030] numerous possibilities of "standard conditions". However, the board is of the opinion that, at least, standard conditions do not encompass extreme brewing conditions which do not lead to a coffee drink within the meaning of the patent. Although different brewing conditions are conceivable in the patent, including applying a pressure of up to 20 bar (see paragraphs [0027] to [0030] of the patent), the board is of the opinion that "standard

conditions" do not encompass an unusually high amount of coffee (powder) blend and/or an unusually low amount of water. Rather, brewing conditions are to be chosen which are usually applied for brewing a coffee drink.

Direct brewing of a coffee blend in a coffee machine at a high pressure using a pump pressure of up to 20 bar is one possible standard condition mentioned in the patent. However, there is no evidence on file that applying these conditions with typical amounts of the coffee powder blend according to E4 and water might lead to a CGA content in the claimed range.

- 3.2.11 In this context, it is noted that no details are given in E4 with respect to which roasting temperature in the fluidized bed roaster (leading to the first set of roasting) and which roasting temperature in the drum roaster (leading to the second set of roasting) are to be used in the method for producing the coffee blend of E4. In the absence of this information, it is questionable whether the coffee blend according to E4 can exactly be reworked at all. However, this is not decisive in the present case.
- 3.2.12 In conclusion, while the expression "under standard conditions" may be interpreted broadly, the appellant has failed to show that the feature "coffee drink brewed from said coffee blend under standard conditions contains at least 550 mg/L CGA" was disclosed in combination with the other features of disclosure (ii) of E4. This feature is thus considered a distinguishing feature over the coffee blend of E4.
- 3.2.13 The technical effect resulting from this difference over E4 is seen in an improved anti-oxidative activity (see for instance paragraph [0008] of the patent).

Thus, the objective technical problem to be solved is considered the same as mentioned in paragraph [0017] of the patent, i.e. to provide a coffee blend (or a method for producing it) having high anti-oxidative activity while at the same time achieving an upregulation of the expression of phase II detoxifying enzymes.

3.2.14 In the board's view, for instance the experiments summarised in Table 2 of E12 show that the claimed coffee blend is suitable to solve this problem, i.e. to achieve the required CGA and NMP contents associated with a high anti-oxidative activity and an upregulation of the expression of phase II detoxifying enzymes.

3.2.15 With respect to the question of obviousness, the board comments as follows.

There is no guidance for a skilled person in E4 how the posed objective technical problem might be solved. E4 is silent with respect to a specific CGA content of the coffee blend and in particular with respect to those measures which lead to the CGA content and at the same time the NMP content required in claim 10 as granted. There is no teaching in E4 on how to achieve a high anti-oxidative activity (associated with a high CGA content) while at the same time achieving an upregulation of the expression of phase II detoxifying enzymes (associated with a high NMP content).

It was undisputed among the parties and in the board's view it is also derivable from the patent that during coffee roasting the CGA content decreases with increasing temperature, whereas conversely the NMP content increases with increasing temperature. Thus, during roasting the CGA content and the NMP content display opposing trends.

In the board's view, achieving the high CGA content and at the same time the high NMP content as required in claim 10 as granted is a complex function of the roasting method, the roasting duration, the roasting temperature, the roast degree, the amount of blend components and the coffee species. This is derivable from e.g. E12 when comparing the exemplary coffee blend as shown in Table 1 with the one shown in Table 2 of E12 in line with claim 10 as granted. None of the documents cited by the appellant in its inventive step objection teaches or suggests how to achieve the CGA content and NMP content required in claim 10 as granted, let alone which specific conditions are suited for achieving this goal.

The appellant referred to E5 which contains a general teaching concerning the roasting of coffee, including an information about typically applied roasting temperatures being in the range of about 180°C to 250°C. However, also E5 fails to provide any guidance on how to achieve a coffee blend having a high NMP content while at the same time achieving the high CGA content required in claim 10 as granted. When considering E5, it is reasonable to assume that a skilled person interested in increasing the CGA content (due to its anti-oxidative activity) would have selected *Coffea canephora* which has a higher CGA content compared to *Coffea arabica* (see page 107, last paragraph, to page 108, second paragraph, of E5). Thus, a skilled person having knowledge of E4 would rather be taught away by E5 from contemplating *Coffea arabica*.

In view of the above, the product of claim 10 as granted involves an inventive step in view of E4 as the closest prior art. The same applies to dependent

product claims 11 to 13 as granted, as well as, by analogy, to method claims 1 to 9 as granted.

4. The grounds for opposition under Article 100(a) EPC in relation to Article 54 EPC and Article 56 EPC do not prejudice the maintenance of the patent as granted. Since the main request is therefore allowable, there is no necessity to deal with the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Nielsen-Hannerup

A. Haderlein

Decision electronically authenticated