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**Datasheet for the decision
of 22 August 2022**

Case Number: T 2823/19 - 3.3.07

Application Number: 12705530.9

Publication Number: 2667735

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Title of invention:
TOBACCO-DERIVED CASING COMPOSITION

Patent Proprietor:
R. J. Reynolds Tobacco Company

Opponent:
JT International S.A.

Headword:
Nicotiana extract/REYNOLDS

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - obvious alternative (all requests)



Beschwerdekammern

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Case Number: T 2823/19 - 3.3.07

D E C I S I O N
of Technical Board of Appeal 3.3.07
of 22 August 2022

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted on 14 August 2019
revoking European patent No. 2667735 pursuant to
Article 101(3) (b) EPC

Composition of the Board:

Chairwoman T. Sommerfeld
Members: J. Molina de Alba
R. Romandini

Summary of Facts and Submissions

I. The decision under appeal is the opposition division's decision revoking European patent No. 2 667 735. It is based on the claims of the patent as granted (main request) and nine auxiliary requests.

II. The following documents are referred to in this decision:

D1	US 5,005,593
D3	US 2005/0260326
D10	S.C. Agrupis & E. Maekawa, CORESTA Joint Meeting of the Smoke and Technology Groups, 7-11 September 1997, 237-44
D11	US 2002/0162562
D12	US 4,991,599
D14	EP 1 623 634
D15	JP 55(1980)-51545 (English translation filed by the appellant on 23 December 2019)

III. In the decision under appeal, the opposition division concluded, among other things, that:

- the subject-matter of the main request and auxiliary requests 1 and 2 was not novel over D1, D2, D14 and D15
- the subject-matter of auxiliary requests 3 to 6 was not novel over D14
- auxiliary requests 7 and 8 were not to be admitted into the proceedings

- auxiliary request 9 was to be admitted, but its subject-matter was not inventive starting from D15

- IV. The patent proprietor (appellant) filed an appeal requesting that the decision be set aside and that the patent be maintained as granted. With the statement of grounds of appeal, it re-filed the claims of auxiliary requests 1 to 9 on which the decision under appeal is based.
- V. In its reply to the statement of grounds of appeal, the opponent (respondent) requested that the appeal be dismissed.
- VI. The board scheduled oral proceedings, in line with the parties' requests, and gave its preliminary opinion.
- VII. In response to the board's preliminary opinion, the appellant withdrew the main request and auxiliary requests 1, 2 and 4 to 8 then on file and re-filed auxiliary request 3 as its new main request and auxiliary request 9 as new auxiliary request 3. It also filed new auxiliary requests 1 and 2.

Independent claims 1 and 8 of the main request read as follows:

"1. A flavorful tobacco composition for use in a tobacco product in the form of an extract derived from the root of a plant of the Nicotiana species and, optionally, the stalk of a plant of the Nicotiana species, wherein the derived extract is based on particulate tobacco material comprising at least 90 percent by dry weight of the root and the stalk, and

wherein the derived extract comprises at least one compound selected from vanillin and syringaldehyde."

"8. A method for preparing a flavorful composition from the roots and, optionally, the stalk of a plant of the Nicotiana species, comprising:

i) receiving a particulate tobacco material comprising at least 90 percent by dry weight of root material of a harvested plant of the Nicotiana species and of stalk material of a harvested plant of the Nicotiana species;

ii) extracting water-soluble components from the particulate tobacco material to form an aqueous extract, wherein the extracting comprises contacting the particulate tobacco material with an aqueous solvent to form a moist tobacco material, heating the moist tobacco material at an elevated temperature, and separating the aqueous extract from an insoluble portion of the moist tobacco material; and

iii) concentrating the aqueous extract to provide a flavorful tobacco composition suitable for use in a tobacco product, wherein the flavorful tobacco composition comprises at least one compound selected from vanillin and syringaldehyde."

Claim 1 of auxiliary request 1 is identical to claim 8 of the main request.

Claim 1 of auxiliary request 2 differs from claim 8 of the main request in that the sentence in point i) "*and of stalk material of a harvested plant of the Nicotiana species*" has been deleted.

Claim 1 of auxiliary request 3 reads as follows:

"1. A method for preparing a flavorful composition from the stalk or roots of a plant of the Nicotiana species, comprising:

i) receiving a particulate tobacco material comprising at least 90 percent by dry weight of at least one of root material of a harvested plant of the Nicotiana species and stalk material of a harvested plant of the Nicotiana species;

ii) extracting water-soluble components from the particulate tobacco material to form an aqueous extract, wherein the extracting comprises contacting the particulate tobacco material with an aqueous solvent to form a moist tobacco material, heating the moist tobacco material at an elevated temperature, and separating the aqueous extract from an insoluble portion of the moist tobacco material; and

iii) concentrating the aqueous extract to provide a flavorful tobacco composition suitable for use in a tobacco product, wherein the flavorful tobacco composition comprises at least one compound selected from vanillin and syringaldehyde, wherein the concentrating step comprises evaporating sufficient aqueous solvent to form a solid material suitable for incorporation into a tobacco product in powder form."

VIII. With the parties' agreement, oral proceedings were held via videoconference on 22 August 2022. At the end of the oral proceedings, the board announced its decision.

- IX. The appellant's arguments relevant to this decision can be summarised as follows.

Main request

The method for preparing a flavourful composition in claim 8 of the main request was inventive. Starting from D15, the method differed in that the flavourful composition was prepared from tobacco roots. The experimental data in the patent showed that the flavour of such a composition was different to that of a composition obtained from stalks or any other part of a tobacco plant. The extracts obtained by the method of claim 8 were particularly useful as tobacco casing materials to replace cocoa and liquorice. The objective technical problem was the provision of a composition with an alternative flavour. It was not obvious to solve this problem by using tobacco roots as the starting material. D15 suggested extracting the whole or specific parts of a tobacco plant, but the harvested plant or the plant parts recited in D15 were all above the ground. In contrast, roots were under the ground, so they were not necessarily harvested and needed to be treated in a different way to other plant parts. The skilled person would not have turned to D14, D10 or D3. D14 and D10 neither concerned the preparation of a flavourful composition nor suggested starting from tobacco roots to obtain a different flavour profile. D3 did not even mention tobacco as possible plant material.

Auxiliary request 3

The method in claim 1 of auxiliary request 3 was also inventive. It differed from the method in D15 in that

the flavourful composition was concentrated to form a solid for incorporation in a tobacco product in powder form. This difference solved the problem of providing an alternative form of the flavourful tobacco composition. The solution proposed in claim 1 was not obvious. D15 taught away from the production of a solid since it was directed to a liquid extract that should not be concentrated too much because concentration increased viscosity and reduced handleability. Like D15, D1 concerned the production of a liquid tobacco extract.

- X. The respondent's arguments relevant to this decision can be summarised as follows.

Main request

The method in claim 8 of the main request was not inventive. Starting from D15, it differed in that the starting material comprised at least 90% by dry weight of root or root and stalk. This difference did not produce any technical effect. The flavourful compositions obtained in D15 could not be distinguished from the compositions obtained by the claimed method. First, they contained vanillin and/or syringaldehyde, which were naturally present in tobacco plant parts and were readily extracted. Second, the composition of an extract was not only determined by the plant part used as the starting material. Other factors such as plant species, plant age and size, and extraction conditions could produce great variations. Therefore, the method of claim 8 neither produced better compositions nor flavourful compositions particularly suitable for a specific end use. The objective technical problem was the provision of an alternative method for making a tobacco flavourful composition. The solution proposed

in claim 8 was obvious from D15 alone or from its combination with documents D14, D10 or D3, all of which suggested that roots were a suitable starting material alternative to other plant parts.

Auxiliary request 3

The method in claim 1 of auxiliary request 3 was not inventive either. Starting from D15, it differed in that the end product was provided in powder form. This difference had no associated technical effect, so the objective technical problem remained the provision of an alternative method for making a tobacco flavourful composition. The addition of a concentration step to provide the composition as a powder was an obvious modification. It was not precluded by the teaching of D15 and was suggested by D1, D11 and D12, all of which described the preparation of tobacco extracts in powder form.

XI. The parties' final requests were as follows.

- The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of any of the set of claims filed with the letter dated 28 July 2022 as the main request and auxiliary requests 1 to 3 (the main request and auxiliary request 3 being identical to auxiliary requests 3 and 9 on which the decision under appeal is based, respectively).
- The respondent requested that the appeal be dismissed. In addition, it requested that the opposition division's decision to admit auxiliary

request 9 (auxiliary request 3 in these appeal proceedings) be reversed.

Reasons for the Decision

1. The appeal is admissible. It meets the requirements of Articles 106 to 108 and Rule 99(2) EPC.
2. *Main request - inventive step (Article 56 EPC)*
 - 2.1 The patent (paragraph [0010]) is directed to the preparation of a flavourful tobacco composition for use in a tobacco product. The composition is an extract derived from the root or the stalk of a tobacco plant.

Claim 8 of the main request defines a method for preparing tobacco extracts according to the invention. In the method, a particulate starting material comprising at least 90% by dry weight of root or root and stalk is extracted with an aqueous solvent at high temperature. The liquid phase is then separated and concentrated. The resulting extract contains at least one of vanillin and syringaldehyde, which are flavourful compounds resulting from the degradation of lignin during the preparation process (paragraphs [0012], [0038] and [0065]).
 - 2.2 The parties agreed that D15 is a suitable starting point for assessing inventive step. The board sees no reason to take another stance.

Like the patent, D15 (page 1, first paragraph of the description and pages 2 to 4) concerns a method of

producing a flavourful tobacco composition for use in a tobacco product. In D15, a whole tobacco plant or a part of it is ground, dried and extracted with water or a hydrophilic organic solvent and optionally heated. As plant parts, D15 cites (page 2, lines 5 and 6) "*leaf, pinched portion, axillary bud, stalk, or a mixture thereof*". The extract is subsequently concentrated and heat treated to obtain a flavourful tobacco sauce which, upon dilution, can be sprayed onto a tobacco product to improve its flavour and taste.

- 2.3 It was common ground between the parties that the method of claim 8 differs from the one in D15 in that the starting tobacco material comprises at least 90% by dry weight of root or root and stalk. The appellant did not contest that due to the nature of the method of D15, the tobacco sauce obtained in D15 could be expected to contain vanillin and syringaldehyde.
- 2.4 On the technical effect produced by this difference, the appellant referred to paragraphs [0038], [0039] and [0067] of the patent and submitted that extracts obtained from different plant parts have a different flavour profile and are usable for different purposes. Thus, as taught in paragraphs [0010], [0012] and [0022] of the patent, the starting material of claim 8 results in a composition with a different flavour which is particularly useful for replacing cocoa and liquorice as tobacco casing ingredients (letter of 28 July 2022, page 3, point 17).

However, as argued by the respondent, the appellant has not demonstrated that the method of claim 8 results in extracts which have improved properties or which are more suitable for a specific use, e.g. replacing cocoa or liquorice as casing ingredients. The plant part used

as the starting material is not necessarily more determinant for the composition of the extract than other factors not specified in claim 8 such as the *Nicotiana* species, plant age and size at harvest, or the extraction conditions (solvent, pH, temperature, time, etc.). Therefore, the variability of the extracts that may be obtained by the method of claim 8 does not allow the conclusion that the extracts are better suited for any particular use. If distinguishable at all, they are just extracts with a different flavour profile.

- 2.5 Consequently, the objective technical problem is, as proposed by the respondent, the provision of an alternative method for producing a flavourful composition for use in a tobacco product.

It was undisputed that the method of claim 8 solves this problem.

- 2.6 The solution proposed in claim 8, namely using tobacco roots or roots and stalks as the starting material, is obvious from D15 alone which suggests the use of a whole tobacco plant or a part of it. D15 (page 2, lines 5 and 6) recites as illustrative plant parts "*leaf, pinched portion, axillary bud, stalk, or a mixture thereof*". However, even if D15 does not mention roots in its list of illustrative plant parts, the board sees no reason for the skilled reader to construe that the list is exhaustive or that it excludes roots as a suitable starting material; D15 neither suggests that the starting material is critical nor that it should be limited to the explicitly mentioned plant parts. This is even more the case considering documents D14, D10 and D3, from which it is apparent that tobacco roots

are a suitable starting material for obtaining flavourful tobacco compositions.

D14 (Figure 1) discloses the preparation of a regenerated tobacco material flavoured with an extract from natural tobacco material. In paragraphs [0002] and [0015], D14 teaches that the natural tobacco material from which flavours can be extracted are leaf, shreds, central vein, stalk, root and their mixtures.

D10 (Table 2) shows that tobacco roots have a similar lignin content and syringaldehyde/vanillin ratio as tobacco stalks.

D3 teaches (paragraphs [0010] and [0082]) that the treatment of plant materials at high temperature and pressure decomposes lignin and increases the content of low molecular phenol compounds such as vanillin. This confers the plant material a new flavour. According to D3 (paragraph [0064]), the starting material may be a plant or a plant part without limitation, e.g. germinated seeds, pre-emergence seeds, seed coats, buds, flowers, stems, leaves and roots. In its examples, D3 illustrates the method on different plants and plant parts, including rice seeds, malt husks, bamboo, barley straws and tea leaves.

Thus, in light of D15 alone or in combination with D14, D10 and D3, the skilled person would have used tobacco roots as an alternative starting material.

- 2.7 According to the appellant, D15 does not suggest the use of tobacco roots because the plant parts listed on page 2, lines 5 and 6 are aerial parts, which are the parts generally harvested. Roots are under the ground and must be treated differently to other plant parts,

e.g. they have to be extracted from the ground and washed to remove soil. Furthermore, the combination of D15 with D14, D10 and D3 would involve hindsight because D14 and D10 did not concern the preparation of a flavourful composition and D3 did not even relate to tobacco.

These arguments are not convincing. First, there is nothing in D15 suggesting that the suitable starting material needs to be from an aerial plant part. The fact that roots are harvested and treated in a different way to aerial plant parts is irrelevant to their suitability for the production of flavourful compositions. Second, D14 concerns the preparation of a flavourful composition added to the final tobacco product. The fact that the flavourful composition is not the final product of D14 does not render the document less suitable for combination with D15. Third, the knowledge in D10 that roots and stalks have a similar lignin content and syringaldehyde/vanillin ratio is a prompt for the skilled person to consider roots an alternative to stalks for the preparation of flavourful compositions. Four, although D3 does not explicitly mention tobacco plants, its broad teaching is applicable to any plant and plant material containing lignin. This includes tobacco plants and tobacco roots.

2.8 Therefore, the subject-matter of claim 8 does not involve an inventive step, contrary to Article 56 EPC.

3. *Auxiliary request 1*

Claim 1 of auxiliary request 1 is identical to claim 8 of the main request. Therefore, irrespective of the admissibility of auxiliary request 1 pursuant to

Article 13(2) RPBA 2020, its subject-matter lacks an inventive step (Article 56 EPC) for the reasons put forward for the main request.

4. *Auxiliary request 2*

Claim 1 of auxiliary request 2 differs from claim 8 of the main request in that 90% by dry weight of the starting particulate is exclusively root material. It is apparent that this limitation does not change the situation for inventive step as discussed for the main request. The appellant did not provide additional arguments for this request. Therefore, irrespective of its admissibility pursuant to Article 13(2) RPBA 2020, the subject-matter of auxiliary request 2 lacks an inventive step (Article 56 EPC).

5. *Auxiliary request 3*

5.1 *Reversal of admittance by the opposition division*

Auxiliary request 3 was filed as auxiliary request 9 at the oral proceedings before the opposition division, which admitted the claim request into the proceedings (minutes, point 21). The respondent requested that the board reverses this aspect of the decision under appeal.

The board decided to uphold the opposition division's decision to admit auxiliary request 9, now auxiliary request 3. In view of the outcome of the assessment of inventive step for auxiliary request 3 (point 5.2.5), the board does not need to give details on this decision.

5.2 *Inventive step*

- 5.2.1 In relation to claim 8 of the main request, claim 1 of auxiliary request 3 has two main differences. On the one hand, it is broader because the starting material contains roots or stalks, i.e. roots are not necessarily present. On the other hand, the method contains an additional concentration step to produce the flavourful tobacco composition in the form of a powder.
- 5.2.2 Starting from D15, it was common ground between the parties that the method of claim 1 differs in the final step, which delivers the product in the form of a powder. This difference does not provide any technical effect beyond the generally known differences between powder and liquid compositions. Therefore, both parties formulated the objective technical problem as providing a method for the production of an alternative form of the tobacco flavouring composition.
- 5.2.3 The board agrees with the respondent that the provision of a flavourful composition in powder form rather than as a sauce is a customary modification and does not involve an inventive step. Furthermore, this solution is suggested in documents D1 (column 4, second full paragraph; claim 4 and element 80 in Figure 1), D11 (paragraph [0019]) and D12 (column 1, line 42 to column 2, line 4), all of which disclose the concentration of a liquid tobacco extract to obtain a powder.
- 5.2.4 The appellant argued that D15 teaches (page 2, last eight lines) that its final product is in concentrated liquid form and that it cannot be too concentrated because then viscosity becomes too high and makes handling difficult. Therefore, the skilled person would

be taught away from concentrating the composition to a solid. However, this argument overlooks that the passage in D15 warning against high viscosities does not refer to the final tobacco sauce but to the intermediate product that is subsequently heat treated to produce the tobacco sauce. There is no teaching in D15 precluding the concentration of the final tobacco sauce to a powder, if so wished.

5.2.5 Therefore, the subject-matter of auxiliary request 3 is also not inventive (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairwoman:



B. Atienza Vivancos

T. Sommerfeld

Decision electronically authenticated