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Datasheet for the decision of 13 January 2023

Case Number: T 1263/21 - 3.3.09

Application Number: 14173196.8

Publication Number: 2957180

IPC: A23C9/123, A23C9/133, A23C19/032

Language of the proceedings: EN

Title of invention:
METHOD OF PRODUCING A FERMENTED MILK PRODUCT WITH IMPROVED CONTROL OF POST ACIDIFICATION

Patent Proprietor:
Chr. Hansen A/S

Opponent:
DSM IP Assets B.V.

Headword:
Producing a fermented milk product/CHR. HANSEN

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 13(2)

Keyword:
Amendments - added subject-matter (yes)
Inventive step - obvious alternative

Decisions cited:

Catchword:

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Beschwerdekammern

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Case Number: T 1263/21 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 13 January 2023

Appellant: (Patent Proprietor)	Chr. Hansen A/S Bøge Allé 10-12 2970 Hørsholm (DK)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Appellant: (Opponent)	DSM IP Assets B.V. Het Overloon 1 6411 TE Heerlen (NL)
Representative:	DSM Intellectual Property P.O. Box 4 6100 AA Echt (NL)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 10 June 2021 concerning maintenance of the European Patent No. 2957180 in amended form.**

Composition of the Board:

Chairman	A. Haderlein
Members:	M. Ansorge
	N. Obrovski

Summary of Facts and Submissions

I. The proprietor and the opponent both lodged appeals against the opposition division's interlocutory decision holding then auxiliary request 4 allowable.

II. With its notice of opposition, the opponent had requested that the patent be revoked, *inter alia* on the ground for opposition under Article 100(a) EPC in conjunction with Article 56 EPC (lack of inventive step).

III. The opposition division decided, *inter alia*, that the subject-matter of claim 1 of then auxiliary request 4 involved an inventive step in view of D9 as the closest prior art.

IV. The following documents were cited in the present case:

D1: EP 2 957 180 A1 (published version of the application as filed)
D3: US 5,071,763
D8: Experimental report filed by the proprietor by letter of 12 July 2019
D9: US 2005/0196388 A1
D10: JP H02268644 A

V. In the communication pursuant to Article 15(1) RPBA, the board gave its preliminary opinion informing the parties that it considered the subject-matter of claim 1 of all the requests submitted with the proprietor's grounds of appeal or with the reply to the opponent's grounds of appeal as not complying with Article 123(2) EPC. In addition, the board held that

the former main request did not involve an inventive step in view of D9 as the closest prior art.

VI. By letter of 20 December 2022, the proprietor filed a main request and auxiliary requests 1 to 44.

VII. Claim 1 of the main request reads as follows:

"Method of producing a fermented milk product comprising a step wherein milk is fermented, wherein:

(a) the fermentation is initiated by a starter culture, which starter culture comprises lactic acid bacteria capable of metabolizing one or several carbohydrates added to the milk,

(b) the one or several carbohydrates metabolised [*sic*] by the lactic acid bacteria are added to the milk,

(c) the fermentation is terminated by a decrease of the concentration of the one or several carbohydrates during fermentation, wherein the termination of fermentation is controlled by the concentration of carbohydrates in the milk to be fermented, and wherein at the termination of fermentation the concentration of the carbohydrate metabolized by the lactic acid bacteria is in the range of between 5 mg/g and 0.01 mg/g,

(d) the decrease is at least also caused by the metabolic activity of the lactic acid bacteria, and

(e) the fermentation is carried out by a method using a starter culture comprising at least one lactose-deficient *Streptococcus thermophilus* and at least one lactose-deficient *Lactobacillus delbrueckii subsp.*

bulgaricus, wherein the carbohydrate is a fermentable carbohydrate different from lactose."

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that the feature "the carbohydrate is a fermentable carbohydrate different from lactose" is amended to "the carbohydrate is sucrose".

Claim 1 of auxiliary request 2 differs from claim 1 of the main request as follows (see striking-through and highlighting):

"Method of producing a fermented milk product comprising a step wherein milk is fermented, wherein:

(a) the fermentation is initiated by a starter culture, which starter culture comprises lactic acid bacteria capable of metabolizing ~~one or several~~a carbohydrate~~s~~ added to the milk,

(b) the ~~one or several~~carbohydrate~~s~~ metabolised by the lactic acid bacteria ~~are~~ is added to the milk,

(c) the fermentation is terminated by a decrease of the concentration of the ~~one or several~~carbohydrate~~s~~ during fermentation, wherein the termination of fermentation is controlled by the concentration of the carbohydrate~~s~~ in the milk to be fermented, and wherein at the termination of fermentation the concentration of the carbohydrate metabolized by the lactic acid bacteria is in the range of between 5 mg/g and 0.01 mg/g,

(d) the decrease is at least also caused by the metabolic activity of the lactic acid bacteria, and

(e) the fermentation is carried out by a method using a starter culture comprising at least one lactose-deficient *Streptococcus thermophilus* and at least one lactose-deficient *Lactobacillus delbrueckii subsp. bulgaricus*, wherein the carbohydrate is a fermentable carbohydrate different from lactose and can be metabolized by the lactose-deficient *Streptococcus thermophilus* and the lactose-deficient *Lactobacillus delbrueckii subsp. bulgaricus*."

Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 1 in that the feature "which can be metabolized by the lactose-deficient *Streptococcus thermophilus* and the lactose-deficient *Lactobacillus delbrueckii subsp. bulgaricus*" is added at the end of the claim.

Claim 1 of auxiliary request 4 substantially differs from claim 1 of auxiliary request 2 in that in feature (e) the carbohydrate is specified as sucrose.

Claim 1 of auxiliary request 5 differs from claim 1 of the main request in that the starter culture is specified as being lactose-deficient.

Claim 1 of auxiliary request 6 differs from claim 1 of auxiliary request 1 in that the starter culture is specified as being lactose-deficient.

Claim 1 of auxiliary request 7 differs from claim 1 of auxiliary request 2 in that the starter culture is specified as being lactose-deficient.

Claim 1 of auxiliary request 8 differs from claim 1 of auxiliary request 3 in that the starter culture is specified as being lactose-deficient.

Claim 1 of auxiliary request 9 differs from claim 1 of auxiliary request 4 in that the starter culture is specified as being lactose-deficient.

Claim 1 of auxiliary request 10 differs from claim 1 of the main request in that the feature "a starter culture comprising at least one" is amended to "a starter culture consisting of at least one".

Claim 1 of auxiliary request 11 differs from claim 1 of auxiliary request 1 in that the feature "a starter culture comprising at least one" is amended to "a starter culture consisting of at least one".

Claim 1 of auxiliary request 12 differs from claim 1 of auxiliary request 2 in that the feature "a starter culture comprising at least one" is amended to "a starter culture consisting of at least one".

Claim 1 of auxiliary request 13 differs from claim 1 of auxiliary request 3 in that the feature "a starter culture comprising at least one" is amended to "a starter culture consisting of at least one".

Claim 1 of auxiliary request 14 differs from claim 1 of auxiliary request 4 in that the feature "a starter culture comprising at least one" is amended to "a starter culture consisting of at least one".

Claim 1 of auxiliary requests 15 to 29 differs from claim 1 of the main request and of auxiliary requests 1 to 14 (in the same order) in that in feature (c) it is specified that in the decrease of the concentration of the carbohydrate and in the control of the termination of fermentation the added carbohydrate is meant.

Claim 1 of auxiliary requests 30 to 44 substantially differs from claim 1 of the main request and auxiliary requests 1 to 14 (in the same order) in that the feature "the one or several carbohydrates metabolised by the lactic acid bacteria are added to the milk" or "the carbohydrate metabolised by the lactic acid bacteria is added to the milk" is deleted.

VIII. The parties' relevant arguments, submitted in writing and during the oral proceedings, are reflected in the reasons for the decision below.

IX. Requests

The proprietor requested that the decision be set aside and that the patent be maintained on the basis of the main request or one of auxiliary requests 1 to 44, all filed on 20 December 2022 (auxiliary requests 30 to 44 corresponding to the previous main request and auxiliary requests 1 to 14).

The opponent requested that the decision be set aside and that the patent be revoked.

Reasons for the Decision

1. Article 13(2) RPBA

The board admitted the main request and auxiliary requests 1 to 44 into the proceedings, mainly since the board had introduced new objections under Article 123(2) EPC with its communication pursuant to

Article 15(1) RPBA. However, as outlined below, none of these requests is allowable.

MAIN REQUEST AND AUXILIARY REQUEST 1

2. Article 123(2) EPC

2.1 The opponent argued that the subject-matter of claim 1 of the main request and of auxiliary request 1 did not meet the requirement of Article 123(2) EPC, whereas the proprietor was of the opinion that there was sufficient basis for the claimed subject-matter in the application as filed. As both parties referred to the published version of the application as filed, i.e. D1, hereinafter D1 is used whenever reference is made to the application as filed.

2.2 The relevant disclosure for the claimed method (see alternative (B) mentioned in paragraph [0040] and specifically disclosed in paragraph [0057] of D1) is paragraph [0057] of D1, which reads as follows:

"According to this approach the present invention also provides methods of producing a fermented milk product comprising a step wherein milk is fermented, wherein:

(a) the fermentation is initiated by a starter culture, which starter culture comprises *Streptococcus thermophilus* with a deficiency in lactose metabolism and *Lactobacillus delbrueckii ssp. bulgaricus* with a deficiency in lactose metabolism,

(b) a carbohydrate is added to the milk that can be metabolized by the *Streptococcus thermophilus* and the *Lactobacillus delbrueckii ssp. Bulgaricus* as defined in (a),

(c) the fermentation is terminated by a decrease of the concentration of the carbohydrates added to the milk, and

(d) the decrease is at least also caused by the metabolic activity of the *Streptococcus thermophilus* and the *Lactobacillus delbrueckii ssp. Bulgaricus* as defined in (a)." (emphasis added by the board)

2.3 While an active step of adding a carbohydrate is present in claim 1, the requirement that the added carbohydrate can be metabolized by both the lactose-deficient (hereinafter "lac(-)") *Streptococcus thermophilus* (hereinafter "ST") and the lac(-) *Lactobacillus delbrueckii ssp. bulgaricus* (hereinafter "LB") (as required in step (b) of paragraph [0057] of D1) is absent from claim 1.

2.4 The proprietor disagreed that paragraph [0057] of D1 required that both the lac(-) ST and the lac(-) LB can metabolise the added carbohydrate. However, the expression "(b) a carbohydrate is added to the milk that can be metabolized by the *Streptococcus thermophilus* and the *Lactobacillus delbrueckii ssp. Bulgaricus* as defined in (a)" as given in paragraph [0057] of D1 is at odds with the proprietor's interpretation. There is no doubt that the capability of metabolising the added carbohydrate relates to both strains, i.e. lac(-) ST and lac(-) LB, and not to only one of them. This technical information is missing in claim 1. It is not implicitly required by the wording of claim 1 either.

Thus the subject-matter of claim 1 of the main request does not meet the requirement of Article 123(2) EPC.

2.5 The subject-matter of claim 1 of auxiliary request 1, which differs from claim 1 of the main request in that it specifies that the carbohydrate is sucrose, does not meet the requirement of Article 123(2) EPC for the same reason as given above for the main request.

In addition, there is another problem of added subject-matter in claim 1 of auxiliary request 1. The proprietor argued that paragraph [0062] of D1 provided a basis for the limitation to sucrose as the carbohydrate in claim 1. However, paragraph [0062] of D1 requires sucrose to be added to the milk before fermentation. No such limitation is present in claim 1 of auxiliary request 1. Thus for this reason too there is a violation of Article 123(2) EPC in claim 1 of auxiliary request 1. This added-subject-matter problem applies to other claim requests as well (see point 4 below).

AUXILIARY REQUEST 2

3. Inventive step

3.1 Both parties agreed that D9 qualifies as the closest prior art in the present case. It was also common ground that the subject-matter of claim 1 of auxiliary request 2 differs from D9 in that the claimed method uses a lac(-) ST in the starter culture (first distinguishing feature).

3.2 The proprietor further argued that the claimed method also differed from D9 in the control of the fermentation by the concentration of added carbohydrate which was not lactose (alleged second distinguishing feature). In support of this view, the proprietor

emphasised that in D9 the fermentation was not terminated by a decrease of the concentration of the carbohydrate.

3.3 For the following reasons, the board does not accept the proprietor's view that there is a second distinguishing feature over D9.

3.3.1 D9 discloses a method for producing a fermented dairy product comprising a step of fermenting milk by using a lac(-) LB in the presence of at least one sugar which can be assimilated by said strain (see claim 6 of D9). In a preferred embodiment, the lac(-) LB strain is combined with at least one strain of ST (see paragraph [0022] of D9), wherein any strain of ST which is suitable for manufacturing yogurt can be used (see paragraph [0023] of D9).

3.3.2 Paragraph [0033] of D9 describes that the rate of growth and acidification of the strains of lac(-) LB varies significantly depending on the amount of glucose added to the milk. This makes it possible properly to control their growth and their acidification, by simply adding the desired amount of glucose at the start of fermentation.

This disclosure of D9 clarifies that the method can be controlled by the addition of glucose as a fermentable carbohydrate.

When the wording of the present claim 1 is interpreted from the perspective of the person skilled in the art, the term "termination of fermentation" is to be understood broadly, which is confirmed when taking the description of the patent into account. A definition is given in paragraph [0028] of the patent, the relevant

part of which reads as follows (emphasis added by the board):

"The methods of the present invention are characterized by a step, wherein milk is fermented and the fermentation is terminated by a decrease of the concentration of the one or several carbohydrates during fermentation. This means that the LAB present in the fermentation medium can no longer produce significant amounts of lactic acid due to a very low concentration of carbohydrates that can be metabolized. In one embodiment, termination of fermentation can be characterized by a pH value that is maintained within a range of less than 0.3 pH units while the culture is maintained at the temperature used for fermentation for 20 hours."

3.3.3 Thus, as confirmed by this definition, "termination of fermentation" is not limited to a situation in which there is no longer any change in pH value at all.

3.3.4 Based on the above understanding of "termination of fermentation", the fermentation is therefore also terminated in D9. This follows in particular from the disclosure of paragraph [0039] of D9, which reads as follows:

"For example, experiments carried out by the inventors have shown that, under the same conservation conditions (28 days of conservation at 10°C.), the OpH (difference between the pH at DO and the pH at D28) is between 0.05 and 0.4 in the case of the products obtained using a ferment in accordance with the invention, whereas it is always greater than 0.7 in the case of control ferments in which the strain of *L. bulgaricus* in accordance with the invention is replaced with a wild-type strain."

In addition, Experiments 3 and 6 as shown in Tables II to IV of D9 demonstrate that a low post-acidification is achieved in D9.

3.3.5 In view of the above, a second distinguishing feature cannot be acknowledged over D9.

3.4 The proprietor argued that even if only the first distinguishing feature were acknowledged as the difference over D9, there was still an improvement over D9, i.e. a lower post-acidification.

3.5 For the following reasons, the board cannot acknowledge this alleged improvement over D9.

In this context, the proprietor argued that example 1 of the patent and the experimental report D8 demonstrate that there is no post-acidification after fermentation which can be taken from the flat line of the curve (see e.g. Figure 2 of the patent and Figure 1 of D8). However, even if an improvement were shown in these experiments (which can be left undecided), claim 1 is to be interpreted differently since, when interpreted through the eyes of a skilled person and as confirmed by the description, the expression "termination of fermentation" has a broader meaning (see points 3.3.4 and 3.3.5 above).

3.6 Thus the objective technical problem to be solved in view of D9 is the provision of an alternative method of producing a fermented milk product.

3.7 With respect to obviousness, the board's reasoning is as follows:

D9 teaches that the lac(-) LB is preferably combined with at least one strain of ST, with any strain of ST which is suitable for manufacturing yogurt being able to be used (see paragraphs [0022] and [0023] of D9).

A lac(-) ST is considered a conventional lactic acid strain, fully lac(-) ST strains being taught in D3 and partially lac(-) ST strains being suggested in D10. A skilled person, being told from paragraph [0022] of D9 that any strain of ST which is suitable for manufacturing yogurt can be used, would contemplate the use of the fully lac(-) ST strains of D3 and the partially lac(-) ST strains of D10 as ST strains suited to solving the objective technical problem.

In this context, the board does not share the proprietor's view that D3 does not teach using the lac(-) ST in milk. Nor does the board consider that the teaching of D3 is limited to hydrolysing lactose.

Rather, D3 teaches that the lac(-) ST strains can be used in food and the preparation of dairy products.

The board also fails to see why the person skilled in the art would not consider the lac(-) ST strains of D10 as being suited to solving the objective technical problem. D10 suggests that a lac(-) ST can be used to prepare fermented milk products.

Accordingly, the claimed method is an obvious alternative when starting from D9 as the closest prior art.

In view of the above, the subject-matter of claim 1 of auxiliary request 2 does not involve an inventive step when starting from D9 as the closest prior art.

AUXILIARY REQUESTS 3 TO 44

4. The added-matter problem of the method claimed in auxiliary request 1 equally applies to claim 1 of those claim requests specifying sucrose as the carbohydrate, i.e. auxiliary requests 3, 4, 6, 8, 9, 11, 13, 14, 16, 18, 19, 21, 23, 24, 26, 28, 29, 31, 33, 34, 36, 38, 39, 41, 43 and 44. Thus these claim requests are not allowable either.

5. The conclusion of lack of inventive step of the method claimed in auxiliary request 2 equally applies to claim 1 of auxiliary requests 5, 7, 10, 12, 15, 17, 20, 22, 25, 27, 30, 32, 35, 37, 40 and 42.

5.1 In this context, the board notes that claim requests having in claim 1 the limitation that the starter culture is "lactose-deficient" cannot be judged differently from those claim requests without such a limitation. A starter culture having a lac(-) LB strain as disclosed in D9 is also a lactose-deficient starter culture.

5.2 The same applies to claim requests having in claim 1 the clarification that the termination of fermentation is controlled by the concentration of added carbohydrate. The board considered that this limitation is already implicit in those independent method claims having an active step of adding carbohydrate(s).

5.3 In addition, claim requests having in claim 1 the limitation that a starter culture consists of at least one lac(-) ST and at least one lac(-) LB cannot be judged differently from those claim requests without

such a "consisting-of" formulation, but having a "comprising" formulation.

Firstly, it is questionable whether a starter culture consisting of at least one lac(-) ST and at least one lac(-) LB excludes the possibility of other strains being present. However, even when assuming for the sake of argument that such a formulation would exclude strains other than lac(-) ST and lac(-) LB, there is still a lack of inventive step, at least in view of D9 in combination with D3 (see reasons given under point 3 above). Contemplating the lac(-) ST strain of D3 in combination with the lac(-) LB strain of D9 or replacing the lac(+) ST strain as exemplified in the examples of D9 by a lac(-) ST strain of D3 results in a starter culture consisting of lac(-) ST and lac(-) LB as required in claim 1 of the claims with the "consisting of" wording.

6. In view of the above, there is no allowable claim request on file.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chair:

M. Schalow A. Haderlein

Decision electronically authenticated