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**Datasheet for the decision
of 25 January 2018**

Case Number: T 2246/14 - 3.3.09

Application Number: 02766984.5

Publication Number: 1418819

IPC: A23K1/16, A23K1/18

Language of the proceedings: EN

Title of invention:
Non-starch-polysaccharides

Patent Proprietor:
Cargill, Incorporated

Opponent:
Sedamyl S.p.A.

Former Opponents:
DF3 SAS
Cargill, Incorporated

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

T 0495/10

Catchword:



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Case Number: T 2246/14 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 25 January 2018

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
7 October 2014 maintaining European patent
No. 1418819 in amended form.**

Composition of the Board:

Chairman W. Sieber
Members: J. Jardón Álvarez
D. Prietzel-Funk

Summary of Facts and Submissions

- I. This decision concerns the second appeal originating from European patent No. 1 418 819.
- II. Three notices of opposition against the patent had been filed requesting the revocation of the patent in its entirety on the grounds of Article 100(a) EPC (lack of novelty and lack of inventive step), (b) and (c) EPC.
- III. In its first decision the opposition division had revoked the patent because the claims of the then pending request did not meet the requirements of either Article 84 EPC or Article 123(2) EPC and, additionally, the claims were not allowable under Article 53(c) EPC.
- IV. With its decision of 3 July 2012 in the subsequent appeal proceedings (T 0495/10), the same board, albeit in a different composition, held that claims 1 to 8 of the sixth auxiliary request filed with the statement of grounds of appeal dated 22 April 2010 met the requirements of Articles 53(c), 84, 123(2) and (3) EPC.

Since the opposition division had not taken a decision on other patentability issues raised by the opponents, the board remitted the case to the opposition division for further prosecution.
- V. During the further opposition proceedings, opponent 03 withdrew its opposition and later on became the patent proprietor. It pursued the case on the basis of a main request (identical to the sixth auxiliary request before the board in the first appeal proceedings) and an auxiliary request, both requests filed on 23 May 2014.

Claim 1 of the main request read as follows:

"1. Use of arabinoxylans or preparations or materials containing arabinoxylans for the manufacture of a feed additive for monogastric animals for improving the weight gain and/or feed utilisation of monogastric animals, said feed additive comprising at least 20% w/w of low molecular weight arabinoxylans having a molecular mass between 414 and about 52,800 Da and said feed additive being used at 1 to 50 g of said low molecular weight arabinoxylans per kg of feed."

Claim 1 of the auxiliary request read as follows:

"1. Use of arabinoxylans or preparations or materials containing arabinoxylans for the manufacture of a feed additive for monogastric animals for improving the weight gain and/or feed utilisation of monogastric animals, said feed additive consisting of low molecular weight arabinoxylans having a molecular mass between 414 and about 52,800 Da and said feed additive being used at 1 to 50 g of said low molecular weight arabinoxylans per kg of feed."

VI. The documents cited during the opposition proceedings included:

D6: M. Choct *et al.*, "Anti-nutritive effect of wheat pentosans in broiler chickens: roles of viscosity and gut microflora". *British Poultry Science* (1992), vol. 33, pages 821 to 834;

D27: H. Yamada *et al.*, "Advances in Cereal Chemistry and Technology in Japan". *CEREAL FOODS WORLD*, (1993), vol. 38(7), pages 490 to 492; and

D41: US 5 614 501 A.

VII. In its second decision the opposition division held that the claims of the main request fulfilled the requirements of Articles 83 and 54 EPC but lacked inventive step in view of the combined teaching of documents D41 and D27.

On the other hand, the opposition division concluded that the claims of the auxiliary request fulfilled the requirements of the EPC and maintained the patent in amended form.

VIII. This decision was appealed by the patent proprietor (in the following: the appellant). In its statement setting out the grounds of appeal filed on 17 February 2015, the appellant requested that the decision under appeal be set aside, and that the patent be maintained on the basis of the claims of either the main request before the opposition division (see point V above) or of any of three auxiliary requests, all requests filed with the statement of grounds of appeal. It also filed the following new evidence:

AP1: Letter filed by the previous patent proprietor, K.U. Leuven Research & Development, on 1 September 2003 during the examination proceedings (5 pages);

AP2: Declaration of Ms Annick Pollet dated 13 February 2015 (2 pages) and her *curriculum vitae* (2 pages); and

AP3: Declaration of the inventor of the patent, Mr Jan Delcour, before the US Patent Office dated 6 October 2007 (7 pages).

- IX. By letter dated 17 June 2015, the registry of the board communicated to the parties that the former opponent 02, the company DF3 SAS, had been dissolved and thus had ceased to be a legal person. Consequently, it had lost its capacity to be party to these proceedings.
- X. In a communication dated 8 May 2017 the board gave its preliminary view that it saw no reason to overturn the decision of the opposition division concerning the main request. The board also indicated that the second auxiliary request filed with the statement of grounds of appeal could serve as a basis for allowing the appeal.
- XI. The appellant replied to the communication of the board with letter dated 19 July 2017, and filed a new main request based on its previous second auxiliary request and a description therein adapted. It also maintained its previous requests, now renumbered as auxiliary requests 1 to 4.

Claim 1 of the new main request reads as follows

"1. Use of arabinoxylans or preparations or materials containing arabinoxylans for the manufacture of a feed additive for monogastric animals for improving the weight gain and/or feed utilisation of monogastric animals, said feed additive comprising at least 20% w/w of low molecular weight arabinoxylans having a molecular mass between 414 and about 52,800 Da and said feed additive being used at 1 to 10 g of said low molecular weight arabinoxylans per kg of feed."

Claims 2 to 6 are dependent claims.

- XII. Opponent 01 (respondent) did not file any submissions or requests during the present appeal proceedings.
- XIII. In a communication dated 16 November 2017 the board informed the parties that the amendments made to the claims of the main request overcame the objections of the board in its communication of 8 May 2017 and that before a decision could be issued, revision of the description was necessary. On 15 January 2018 the registry of the board informed the appellant that there were still some mistakes in the documents intended for grant of the patent and asked it to correct them.
- XIV. On 16 January 2018 the appellant filed a corrected version of the claims and description; claim 1 being identical to claim 1 filed with letter of 19 July 2017 (see point XI above).
- XV. The arguments of the appellant, in so far as they are relevant for the present decision, may be summarised as follows:
- The opposition division erred in selecting D41 as closest prior art. D6 should be considered as the closest prior art as it has more structural features in common with the claimed invention than D41.
 - The technical problem to be solved by the patent was to provide a feed additive to improve weight gain and/or feed utilisation in monogastric animals. The solution provided by the invention, namely the use of the claimed fraction of low molecular weight arabinoxylans in the feed additive in a dosage lower than 10 g per kg of feed, involved an inventive step. There was no suggestion

in any of D6, D41 or D27 that adding a lower dosage of arabinoxylans could improve broiler performance.

XVI. The appellant requests that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 to 6 of the main request filed on 16 January 2018, and auxiliarily, on the basis of the sets of claims of any of auxiliary requests 1 to 4, filed on 19 July 2017.

Reasons for the Decision

MAIN REQUEST

1. Preliminary remark

1.1 The claims of the main request are based on the set of claims of the main request before the opposition division, which was the set of claims before the board in the first appeal proceedings (T 0495/10), with the following modifications:

- claim 1 results from the combination of previous claims 1 and 5;
- claim 4 has been deleted; and
- claims 6 to 8 have been renumbered as claims 4 to 6 and its dependency has been adapted to the new numbering of the claims.

1.2 In view of these amendments, the finding in the previous decision that then pending claims met the requirements of Article 123(2) and (3) EPC applies equally to the claims of the present main request.

1.3 The findings in the appealed decision that the invention was sufficiently disclosed and that the claimed subject-matter was novel equally apply to the claims of the main request now under consideration. They were not contested in appeal proceedings and the board does not see any reason either to raise an objection of its own in this connection.

1.4 It follows from the above that the only issue remaining in these proceedings is whether the claimed subject-matter involves an inventive step.

2. *Inventive step*

2.1 The invention aims to improve growth performance and feed utilisation in monogastric animals by using low molecular mass arabinoxylans as dietary supplements (see paragraph [0001] of the specification).

2.2 Closest prior art

2.2.1 The board agrees with the finding in the appealed decision that D41 represents the closest prior art.

2.2.2 The appellant in its statement of grounds of appeal contested this finding and maintained that D6 should be regarded as the closest prior art. It noted that both D6 and D41 related to a similar purpose or objective to the claimed invention, i.e. feed additives which improve production traits of livestock animals, but argued that D6 represented a closer prior art because it had more structural features in common with the claimed invention. In the appellant's view D41 did not qualify as the closest prior art because it did not disclose a molecular weight for arabinoxylans.

- 2.2.3 In its communication of 8 May 2017 the board stated that D41 implicitly disclosed an average molecular weight for arabinoxylans and that it saw no reason to not consider this document as the closest prior art.
- 2.2.4 D41 discloses a composition containing a dietary fibre in combination with polyphenol(s) (column 3, lines 26 to 27) for treating human gastrointestinal disorders in which beneficial moderation of the intestinal microflora or an increase in large intestine pH is sought (column 3, lines 19 to 21). This composition can also be used to increase the growth rate and to improve feed conversion in animals and to ameliorate or cure scours or diarrhoea, and also to improve and maintain general health (column 3, lines 22 to 25). Dietary fibres include cellulose, hemicellulose, oligosaccharides, pectins, etc. (column 3, lines 46 to 52). Arabinogalactan with an average molecular weight between 3 000 and 2 500 000, preferably between 3 000 and 100 000 is the preferred hemicellulose (column 4, lines 3 to 8) but arabinoxylans may also be used (column 4, lines 13 to 14). Typical dosage ranges are between 0.1 and 5% weight of the animal feed, preferably between 0.1 and 2% by weight of the animal feed (column 3, lines 10 to 12).
- 2.3 Problem to be solved and its solution
- 2.3.1 According to the appellant, the technical problem to be solved by the patent in view of this prior art is to provide a feed additive to improve weight gain and/or feed utilisation in monogastric animals (see paragraph [0008] of the patent specification).

2.3.2 As a solution to this problem, claim 1 proposes the use of a feed additive

- comprising at least 20% w/w of low molecular weight arabinoxylans having a molecular mass between 414 and 52,800 Daltons, and
- using the additive at a relatively low dosage of between 1 and 10 g per kg of feed.

2.3.3 The examples in the patent and the declaration of the inventor filed with the statement of grounds of appeal (AP3) convincingly show the beneficial effect of the addition of low molecular weight arabinoxylans on growth rate and feed utilisation of broilers. Example 1 in the patent shows that diets containing 10 g or less of low molecular arabinoxylans results in improvement in weight gain and feed utilisation in broilers and, interestingly, that a still lower dosage (5 g) was most effective, i.e. results in further improvement in weight gain and feed conversion (see example 1, tables 2a to 2h).

2.3.4 The board is therefore satisfied that the above technical problem has been credibly solved by the measures taken.

2.4 Obviousness

2.4.1 It remains to be decided whether, in view of the available prior art, it would have been obvious for the skilled person to solve this technical problem by the means claimed.

2.4.2 D41 mentions arabinoxylans as dietary fibres, but does not hint at the use of specific arabinoxylans, namely

those having the low molecular weight claimed, and at a dosage lower than 10 g per kg of feed. Moreover, it is silent about any possible positive effect on the growth performance when used as feed additive.

- 2.4.3 D27 discloses that arabinoxylans of molecular weight below 5 000 Da which are prepared from wheat bran are selectively bifidogenic and could therefore be used as food additive (see pages 491 and 492 under "Physiological properties of WBO" and "Conclusions"). D27 compares the prebiotic effects obtained by adding 25 g and 50 g of an arabinoxylan preparation (see page 492, table II). The results in the table show that the addition of 50 g is more effective than the addition of 25 g.

Therefore the skilled person would not be incited by D27 to use the low claimed amounts now used.

- 2.4.4 The opposition division denied an inventive step of the then claimed subject-matter because of the combined teaching of D41 and D27. This finding no longer applies to the claims now under consideration for the reasons given above, namely that there is no hint in the cited prior art to the use of the selected arabinoxylans in the claimed low dosage to improve weight gain and/or feed utilisation.

- 2.5 In view of the above, the board concludes that the person skilled in the art, starting from D41 as the closest prior art, would not have arrived in an obvious manner at the subject-matter of claim 1 of the main request. The subject-matter of claim 1, as well as of dependent claims 2 to 7, involves an inventive step.

2.6 The appellant also filed a description adapted to the claims of the main request. The board has no objection to the amendments made.

AUXILIARY REQUESTS 1 TO 4

Since the main request is allowable, there is no need for the board to deal with these requests.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of the following documents:
 - Claims 1 to 6 of the main request filed with letter dated 16 January 2018;
 - Pages 1 to 19 of the description filed with letter dated 16 January 2018; and
 - Figures 1 and 2 of the published patent specification.

The Registrar:

The Chairman:



M. Cañueto Carbajo

W. Sieber

Decision electronically authenticated