

Internal distribution code:

- (A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

**Datasheet for the decision
of 7 August 2018**

Case Number: T 1799/13 - 3.3.08

Application Number: 06748522.7

Publication Number: 1866428

IPC: C12P23/00, A23L1/275,
C12N15/80, C12R1/645

Language of the proceedings: EN

Title of invention:

PRODUCTION OF CAROTENOIDS IN OLEAGINOUS YEAST AND FUNGI

Applicant:

DSM IP Assets B.V.

Headword:

Carotenoids oleaginous Yarrowia fungus/DSM

Relevant legal provisions:

EPC Art. 113(1)

RPBA Art. 12(4)

Keyword:

New set of claims filed with statement of grounds of appeal -
admitted (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1799/13 - 3.3.08

D E C I S I O N
of Technical Board of Appeal 3.3.08
of 7 August 2018

Appellant: DSM IP Assets B.V.
(Applicant) Het Overloon 1
6411 TE Heerlen (NL)

Representative: Schwander, Kuno
DSM Nutritional Products AG
Wurmisweg 576
4303 Kaiseraugst (CH)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 5 April 2013
refusing European patent application No.
06748522.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman B. Stolz
Members: P. Julià
R. Winkelhofer

Summary of Facts and Submissions

I. European patent application no. 06 748 522.7 is based on the International patent application published under the PCT as WO 2006/102342 (hereinafter "the patent application"). An examining division of the European Patent Office considered that the set of claims 1 to 18 filed on 15 October 2012 did not fulfil the requirements of Articles 84, 83 and 56 EPC. Accordingly, the examining division refused the patent application (Article 97(2) EPC).

II. Claim 1 of the set of claims underlying the decision under appeal reads as follows:

"1. A recombinant *Yarrowia* fungus characterized by:

a. the fungus is oleaginous in that it can accumulate lipid to at least 20% of its dry cell weight; and

b. the fungus produces at least one carotenoid, and can accumulate the produced carotenoid to at least 1% of its dry cell weight;

wherein the fungus comprises at least one modification selected from the group consisting of carotenogenic modifications, oleaginic modifications, and combinations thereof, wherein the term carotenogenic modification comprises an [sic] genetic modification resulting in increased production of one or more carotenoids, wherein the term oleaginic modifications comprises an gentic [sic] modification resulting in increased production and/or activity of one or more oleagenic polypeptides and wherein the at least one modification alters oleagenicity of the fungus, confers

to the fungus oleaginy, confers to the fungus the ability to produce the at least one carotenoid to a level at least 1% of its dry cell weight, or confers to the fungus the ability to produce at least one carotenoid which the fungus does not naturally produce, wherein

the at least one oleaginic polypeptide is selected from the group consisting of acetyl-CoA carboxylase polypeptide, pyruvate decarboxylase polypeptide, isocitrate dehydrogenase polypeptide, ATP-citrate lyase polypeptide, malic enzyme polypeptide, AMP deaminase polypeptide, and combinations thereof;

the at least one carotenogenic modification increases or decreases expression of at least one carotenogenic polypeptide wherein the at least one the carotenogenic polypeptide is selected from the group consisting of: isoprenoid biosynthesis polypeptides, carotenoid biosynthesis polypeptides, isoprenoid biosynthesis competitor polypeptides, and combinations thereof, and wherein

(i) the isoprenoid biosynthesis polypeptides are selected from the group consisting of: acetoacetyl-CoA thiolase polypeptide, HMG-CoA synthase polypeptide, HMG-CoA reductase polypeptide, mevalonate kinase polypeptide, phosphomevalonate kinase polypeptide, mevalonate pyrophosphate decarboxylase polypeptide, IPP isomerase polypeptide, FPP synthase polypeptide, and GGPP synthase polypeptide; and/or

(ii) the carotenoid biosynthesis polypeptides are selected from the group consisting of: phytoene synthase polypeptide, phytoene dehydrogenase polypeptide, lycopene cyclase polypeptide, carotenoid

ketolase polypeptide, carotenoid hydroxylase polypeptide, astaxanthin synthase polypeptide, carotenoid epsilon hydroxylase polypeptide, carotenoid glucosyltransferase polypeptide, lycopene cyclase (beta and epsilon subunits) polypeptides, and acylCoA:diacylglycerol acyltransferase polypeptide; and/or

(iii) the isoprenoid biosynthesis competitor polypeptides are selected from the group consisting of squalene synthase polypeptide, prenyldiphosphate synthase and PHB polyprenyltransferase."

III. An appeal was lodged by the applicant (appellant). With the statement setting out the grounds of appeal, the appellant submitted a new set of claims 1 to 17.

IV. Claim 1 of the new set of claims differs from claim 1 of the set of claims underlying the decision under appeal by the following amendments:

"1. [...]

wherein the fungus comprises at least one modification selected from the group consisting of ~~carotenogenic modifications,~~ oleaginic modifications, and ~~combinations thereof~~ a combination of carotenogenic modifications and oleaginic modifications, wherein the term carotenogenic modification ...

[...]

(i) the isoprenoid biosynthesis polypeptides are selected from the group consisting of: ~~acetoacetyl-CoA thiolase polypeptide, HMG-CoA synthase polypeptide,~~ HMG-CoA reductase polypeptide, ~~mevalonate kinase~~

~~polypeptide, phosphomevalonate kinase polypeptide, mevalonate pyrophosphate decarboxylase polypeptide, IPP isomerase polypeptide, FPP synthase polypeptide, and GGPP synthase polypeptide; and/or~~

(ii) the carotenoid biosynthesis polypeptides are selected from the group consisting of: phytoene synthase polypeptide, phytoene dehydrogenase polypeptide, lycopene cyclase polypeptide, carotenoid ketolase polypeptide, carotenoid hydroxylase polypeptide, ~~astaxanthin synthase polypeptide, carotenoid epsilon hydroxylase polypeptide, carotenoid glucosyltransferase polypeptide,~~ and lycopene cyclase (beta and epsilon subunits) polypeptides, ~~and acylCoA:diacylglycerol acyltransferase polypeptide;~~ and/or

(iii) the isoprenoid biosynthesis competitor polypeptides ~~are selected from the group consisting of squalene synthase polypeptide, prenyldiphosphate synthase and PHB polyprenyltransferase."~~

V. The appellant was summoned to oral proceedings. In a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), the appellant was informed that the board, in the exercise of its discretion under Article 12(4) RPBA, was minded not to admit the new set of claims 1 to 17. Moreover, the board also questioned whether, and to which extent, the grounds of appeal were substantiated and, after some comments about the disclosure of the patent application and the claimed subject-matter, informed the appellant that it was of the provisional opinion that it saw no reason to deviate from the decision of the examining division as regards objections under Articles 84, 83 and 56 EPC.

- VI. In reply thereto, the appellant, without filing substantive arguments, withdrew its request for oral proceedings and informed the board that it would not attend the oral proceedings.
- VII. Oral proceedings took place in the absence of the appellant.
- VIII. The appellant (applicant) requests that the decision under appeal be set aside and that the examination procedure be resumed based on the set of claims filed with the statement setting out the grounds of appeal.

Reasons for the Decision

Article 113(1) EPC

- 1. By its decision not to attend the oral proceedings and not to file substantive arguments in reply to the issues raised in the board's communication (cf. point VI *supra*), the appellant has chosen not to make use of the opportunity to comment on the board's provisional opinion, either in written form or at oral proceedings, although this opinion was in appellant's disfavour and clearly stated that "if the board decides not to admit this set of claims into the appeal proceedings, the appeal will be dismissed" (cf. page 15, point 18 of the board's communication).
- 2. In the light thereof, the present decision is based on the same grounds, arguments and evidence on which the provisional opinion of the board was based.

Procedural issues in the department of first instance

3. In a first communication dated 3 June 2009, when the patent application entered into the regional examination phase, the examining division referred to all the objections raised in the International Preliminary Examination Report (IPER) on Patentability and gave the applicant/appellant the opportunity to overcome them. The objections raised in the IPER related to lack of clarity, lack of support of the claimed subject matter by the description, insufficiency of disclosure and lack of an inventive step.

In a submission dated 18 March 2010, the applicant/appellant replied thereto and filed a set of claims 1 to 47. Claim 1 was directed to a "recombinant fungus" in general which comprised at least one modification selected from the group consisting of carotenogenic modifications, oleaginic modifications, and combinations thereof. As regards the oleaginic modifications, they were further functionally defined in claim 10 and, in claim 12, with reference to six oleaginic polypeptides and the polypeptides in any of Tables 1 through 6. As regards the carotenogenic modifications, they were further functionally defined in claim 24 and, in claims 27 to 28, with reference to the expression or activity of several carotenogenic polypeptides and with reference to specific polypeptides involved in the carotenogenesis, including the polypeptides of Tables 7 to 25, Tables 29 and 30, and combinations thereof.

4. In a second communication dated 26 October 2010, the examining division referred again to the broad scope of the claims, maintained the objections raised under

Articles 84, 83 and 56 EPC, and drew applicant/appellant's attention to the fact that Summons to attend oral proceedings could be expected if the objections were not overcome.

In a submission dated 21 February 2011, the applicant/appellant replied thereto and filed a new set of claims 1 to 20. Claim 1 was directed to a "recombinant *Yarrowia fungus*" which comprised at least one modification selected from the group consisting of carotenogenic modifications, oleaginic modifications, and combinations thereof, wherein these modifications were further functionally defined as resulting in increased production of one or more carotenoids and in increased production and/or activity of one or more oleaginic polypeptides, respectively. The oleaginic polypeptides were further defined in claim 2 with reference to six polypeptides and the polypeptides in any one of Tables 1 through 6. The carotenogenic modifications were further defined in dependent claims, such as in claim 6 with reference to several biosynthesis polypeptides and to the polypeptides of Tables 7 to 25, Tables 29 and 30, and combinations thereof.

5. In a third communication dated 3 April 2012, the examining division referred essentially to the same arguments as already put forward in its previous communication and maintained all the objections raised under Articles 83, 84 and 56 EPC. Reference was again made to a possible issuance of a Summons to attend oral proceedings.

In a submission dated 15 October 2012, the applicant/appellant replied thereto and filed a new set of claims 1 to 18. Claim 1 was directed to a "recombinant

Yarrowia fungus" which comprised at least one modification selected from the group consisting of carotenogenic modifications, oleaginic modifications, and combinations thereof, wherein these modifications were further defined by introducing into claim 1 the subject matter of several dependent claims of the previous set of claims which listed six oleaginic polypeptides and all the specific (22) polypeptides associated with the functionally defined carotenogenic modifications. No reference was made to the polypeptides of the Tables of the patent application (cf. point II *supra*).

6. Summons to attend oral proceedings were issued by the examining division on 16 November 2012. In a communication annexed thereto, the examining division essentially referred again to the arguments put forward in its previous communications and maintained all the objections raised under Articles 84, 83 and 56 EPC. The examining division referred in particular to the fact that the claims defined its subject matter by a result to be achieved (Article 84 EPC). Claim 1 listed six different enzymes for the oleaginic modifications, each of them, taking the description into consideration, encoded by a large number of different genes. For the carotenogenic modification, the claim listed a large number of possible enzymes encoded by a yet larger number of genes. According to the examining division, this amounted to an almost countless number of potential combinations for the carotenogenic and oleaginic modifications. Therefore, in the absence of sufficient support from the description and no guidance as to which genes to modify, the examining division considered it an undue burden and requiring inventive activity to obtain a "recombinant *Yarrowia fungus*" with the properties of claim 1 (Articles 83 and 56 EPC).

In a submission dated 6 March 2013, the applicant/appellant announced its intention not to attend the scheduled oral proceedings and requested the examining division to decide the case based on the arguments on file.

7. On 5 April 2013, the examining division issued the decision under appeal. In this decision, the examining division referred to the reasons given in the three communications dated 26 October 2010, 3 April 2012, and 16 November 2012, and decided that the patent application did not meet the requirements of the EPC.

Admission of the new set of claims 1 to 17

8. According to the established case law (cf. "Case Law of the Boards of Appeal of the EPO", 8th edition 2016, IV.E.1, 1065; cf. also IV.E.4, 1127), the function of an appeal is to give a judicial decision upon the correctness of a separate earlier decision taken by a department of first instance. Appeal proceedings are not an opportunity to re-run the proceedings before the first instance. Article 12(4) RPBA furthermore empowers the board not to admit facts, evidence or requests which could have been presented in the first instance proceedings.
9. With the statement setting out the grounds of appeal, the appellant has filed a new set of claims 1 to 17. The subject matter of the new set of claims has been limited by deletion of subject matter present in the set of claims underlying the decision under appeal. In particular, claim 1 lists six oleaginic polypeptides and 9 polypeptides associated with the functionally defined carotenogenic modifications (actually 8

specific polypeptides and the generic isoprenoid biosynthesis competitor polypeptides of squalene synthase polypeptide), instead of the 22 polypeptides referred to in the set of claims underlying the decision under appeal (cf. points II and IV *supra*).

10. No reasons have been provided to justify and/or explain the introduction of the new set of claims 1 to 17 at this stage of the proceedings and why it could not have been presented in the first instance proceedings, particularly, in reply to the communication of 16 November 2012, or at the scheduled oral proceedings, which were cancelled by the examining division after applicant/appellant's announcement of its intention not to attend them.
11. In the light of the nature and scope of the objections raised by the examining division throughout the whole examination proceedings and the nature and type of the amendments introduced into the new set of claims 1 to 17 (*supra*), the filing of this new set of claims is not in line with the case law referred to above. The admission of the new set of claims at this stage of the proceedings would in fact amount to a continuation of the examination proceedings and not to an actual revision of the decision under appeal.
12. Moreover, in the communication pursuant to Article 15(1) RPBA, the board observed that, in the statement of grounds of appeal, the appellant had acknowledged that the new set of claims 1 to 17 had been limited to a "smaller set of genes" and further stated that "this set of genes are supported by the data from the examples". However, the board also observed that there was nothing more, no other explanation, given in the statement of grounds of

appeal. In particular, no reasons were given to explain why the new set of claims overcame all the objections raised by the examining division (cf. page 7, point 13 of the board's communication).

13. Therefore, the board, in the exercise of its discretion (Article 12(4) RPBA), does not admit the new set of claims 1 to 17.

Conclusion

14. Since the appellant, even though being informed by the board in the communication pursuant to Article 15(1) RPBA of this possible outcome, has not submitted any other sets of claims, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



L. Malécot-Grob

B. Stolz

Decision electronically authenticated