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Datasheet for the decision of 12 June 2013

Case Number: T 2018/09 - 3.3.08

Application Number: 05815360.2

Publication Number: 1809752

IPC: C12N 15/82, A01H 5/00

Language of the proceedings: EN

Title of invention:
Enzymes involved in triterpene synthesis

Applicant:
Plant Bioscience Limited

Headword:
Avenacin synthesis/PLANT BIOSCIENCE

Relevant legal provisions:
EPC Art. 83

Keyword:
"All requests - sufficiency of disclosure (no)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 2018/09 - 3.3.08

D E C I S I O N
of the Technical Board of Appeal 3.3.08
of 12 June 2013

Appellant: (Applicant)
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Representative:
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Decision under appeal:
Decision of the Examining Division of the European Patent Office posted 27 April 2009 refusing European patent application No. 05815360.2 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: M. Wieser
Members: B. Stolz
J. Geschwind

Summary of Facts and Submissions

I. The appeal lies against the decision of the examining division to refuse European patent application No. 05 815 360. The examining division held that the main request, filed on 20 February 2008, and auxiliary request 1, filed on 26 February 2009, lacked an inventive step (Article 56 EPC).

II. The applicant (appellant) filed an appeal and requested that a patent be granted on the basis of its main request filed on 20 February 2008 or, in the alternative, on the basis of one of auxiliary requests I to V (auxiliary requests I, and III to V filed with the grounds of appeal; auxiliary request II corresponding to auxiliary request 1 filed on 26 February 2009).

III. The appellant was summoned to oral proceedings to be held on 14 June 2013. A communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) annexed to the summons, informed it of the preliminary non-binding opinion of the board on some of the issues of the appeal proceedings.

In this communication, the board informed the appellant of its intention to examine the requests not only in respect of their compliance with the requirements of Article 56 EPC but also in respect of their compliance with the requirements of Articles 83 and 84 EPC.

IV. With letter dated 13 March 2013, the appellant withdrew its request for oral proceedings without addressing any of the objections raised by the board.

V. Independent claims 1, 7 and 23 of the main request read as follows:

"1. An isolated polynucleotide comprising:
a) a nucleotide sequence encoding a Cyp51H polypeptide having an amino acid sequence that is at least 80% identical, based on the Clustal V method of alignment, to one of SEQ ID NOs:14 or 26; or

b) a nucleotide sequence comprising the full complement of (a).

7. A recombinant DNA construct comprising the isolated polynucleotide of any one of Claims 1 to 5 operably linked to at least one regulatory sequence.

23. A method of producing a plant resistant to at least one fungus comprising:

a) transforming a plant cell with the recombinant DNA construct of Claim 7;

b) growing the transformed plant cell from step (a) under conditions that promote the regeneration of a whole plant from the transformed cell; wherein the plant regenerated from the transformed cell produces an amount of CYP51H that is greater than the amount of the CYP51H that is produced in a plant that is regenerated from a plant cell of the same species as the plant of step (a) that is not transformed with the recombinant DNA construct of Claim 7; and optionally

c) transforming the plant cell of step (a) with a second recombinant DNA construct comprising a nucleic acid sequence encoding a polypeptide that regulates expression of at least one enzyme of the triterpene pathway; and

d) growing the transformed plant cell from step (c) under conditions that promote the regeneration of a whole plant from the transformed cell; wherein the plant regenerated from the transformed cell produces an amount of CYP51H that is greater than the amount of the CYP51H that is produced in a plant that is regenerated from a plant cell of the same species as the plant of step (c) that is not transformed with the recombinant DNA construct of Claim 7 and said enzyme of the triterpene pathway of said second recombinant DNA construct,

thereby producing a plant resistant to at least one fungus."

VI. Independent claims 1, 7 and 23 of the auxiliary request I, as well as independent claims 1, 5 and 21 of auxiliary requests II to V relate to subject matter corresponding to that of claims 1, 7 and 23 of the main requests.

VII. In its written submissions, the appellant only addressed issues of inventive step.

VIII. The appellant requests that the decision under appeal be set aside and a patent be granted on the basis of the main request or in the alternative on the basis of one of auxiliary requests I to V.

Reasons for the decision

1. In an appeal from a decision of an examining division in which a European patent application was refused the board of appeal has the power to examine whether the application or the invention to which it relates meets the requirements of the EPC. The same is true for requirements the examining division did not take into consideration in the examination proceedings or which it regarded as having been met. If there is reason to believe that such a requirement has not been met, the board shall include this ground into the proceedings (Headnote, decision G 10/93 (OJ EPO 1995, 172)).

2. In its communication attached to the summons to oral proceedings, the board informed the appellant that it was going to examine issues under Article 83 EPC at the oral proceedings, although these had not been mentioned in the decision under appeal.

3. With regard to Article 83 EPC, the board informed the appellant of its preliminary opinion that the subject matter of claim 23 of the main request and of auxiliary request I, as well as of the corresponding claim 21 of auxiliary requests II to V, was not disclosed sufficiently clear and complete for it to be carried out by a person skilled in the art.

4. In reply to the summons to oral proceedings, which it had requested should the board be minded to reach any decision other than allowance of its main request, the appellant withdrew its request for oral proceedings. It

neither addressed the board's objections under Article 83 EPC nor did it submit amended claims.

Article 83 EPC

5. Oat plants show resistance to fungal infections due to the presence of avenacins in their roots. The application discloses two genes, cyp51H1 (Seq ID 14) and cyp51H2 (Seq ID 26). Based on the available evidence (description, page 33, lines 1-7), cyp51H1 encodes an enzyme of the biosynthetic pathway of avenacin synthesis in oat plants.

6. Claim 23 of the main request refers to a method of producing a plant (of any species) resistant to at least one fungus comprising transformation of a plant cell with a DNA construct according to claim 7 and optionally a second recombinant construct comprising a nucleotide sequence encoding a polypeptide that regulates expression of at least one enzyme of the triterpene pathway.

7. The cloned cypP51H1 gene (Seq ID 14) encodes a protein which is part of an enzymatic pathway leading to the production of avenacin, the anti-fungal compound produced in the roots of oat plants. The pathway comprises multiple enzymatic steps, and Cyp51H1 is not the last enzyme in the pathway. Further enzymatic processes such as glycosylation and acylation steps are needed to produce avenacin (cf. e.g. D1, page 8233, right column, and Figure 1). The genes encoding the enzymes involved in the subsequent steps were however not readily available at the date of filing, they had not yet been cloned. Thus, based on the disclosure of

the present application in combination with its general knowledge, the person of skill was not in a position to readily and without undue burden produce a plant comprising avenacin or a plant resistant to a fungus by cotransformation of a plant cell with the gene of Cyp51H1 and any other unspecified gene encoding an enzyme of the triterpene pathway.

8. Regarding cyp51H2 (Seq ID 26), there is no evidence that the encoded protein is even functional in the avenacin biosynthetic pathway. According to the description (page 33, line 25) the cyp51H2 gene is only expressed in oat flowers whereas avenacin biosynthesis only takes place in oat roots. Irrespective of the absence of any evidence of its true function, the person of skill was not in a position to readily produce a plant resistant to at least one fungus by transforming plant cells with cyp51H2 for the same reasons as those given for cyp51H1.

9. The board therefore decides that the subject matter of claim 23 (main request and auxiliary request I) and of claim 21 (auxiliary requests II to V), respectively, is not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).

10. In the absence of an allowable request, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Wolinski M. Wieser