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D E C I S I O N
of 19 December 2003

Case Number: T 0610/01 - 3.3.4

Application Number: 94917664.8

Publication Number: 0703983

IPC: C12N 15/53

Language of the proceedings: EN

Title of invention:
Regulation of plant growth

Applicant:
LONG ASHTON RESEARCH STATION

Opponent:
-

Headword:
Plant growth/LONG ASHTON RESEARCH STATION

Relevant legal provisions:
EPC Art. 107, 54, 56

Keyword:
"Amissibility of the appeal - yes"
"Novelty - yes"
"Inventive step - yes"

Decisions cited:
T 0097/98, T 0656/98, T 0412/93

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0610/01 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 19 December 2003

Appellant: LONG ASHTON RESEARCH STATION
Long Ashton
Bristol BS18 9AF (GB)

Representative: Zumstein, Fritz, Dr.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 30 August 2000 refusing European application No. 94917664.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairwoman: U. M. Kinkeldey
Members: F. L. Davison-Brunel
V. Di Cerbo

Summary of Facts and Submissions

I. European patent application No. 94 917 664.8 published as WO 94/28141 with the title "Regulation of plant growth" was refused by the Examining Division for lack of novelty and of inventive step, of the then claimed subject-matter.

II. The Appellants lodged an appeal against this decision, paid the appeal fee and filed a statement of grounds for the appeal.

III. In a communication, the Board drew the Appellants' attention to the fact that whereas the application had been filed in the name of the firm "Long Ashton Research Station", the notice of appeal was in the name of the firm "Novartis AG".

IV. The Appellants requested correction of the name "Novartis AG" to the name "Long Ashton Research Station" under Rule 65(2) EPC.

V. The Board summoned oral proceedings and sent a communication under Article 11(1) of the Rules of Procedure of the Boards of Appeal setting out its provisional, non-binding opinion on substantive matters.

VI. In answer to this communication, the Appellants filed one main request and two auxiliary requests and provided further arguments in favour of the patentability of the claimed subject-matter.

VII. Oral proceedings took place on 19 December 2003. All previously filed requests were withdrawn and replaced by one request. Claims 1 and 13 of this request read as follows:

"1. A DNA molecule which encodes a polypeptide more than 50% homologous to SEQ ID NO 2 and exhibiting GA 20-oxidase activity."

"13. A polypeptide recombinantly produced by expressing in a suitable host organism a DNA sequence as claimed in any of claims 1 to 10 and having an amino acid sequence more than 50% homologous to SEQ ID NO 2 and exhibiting GA 20 oxidase activity."

Claims 2 to 7 related to further embodiments of the DNA molecule of claim 1. Claims 8 to 10 related to DNAs homologous to specific sequences shown in the application. Claims 11 and 12 related to methods of preparing the DNA of claim 1. Claims 14 to 18 related to further embodiments of the polypeptide of claim 13. Claims 19 and 20 related to methods of preparing said polypeptide. Claims 21 to 30 related to transformed host cells or chimeric gene constructs comprising the DNA according to claim 1. Claims 31 to 33 related to a vector and host cells comprising the chimeric gene constructs of the preceding claims. Claims 34 to 42 related to transgenic plants, plant cells, progeny or propagules comprising the DNA of claims 1 to 10 or the chimeric gene constructs of claims 22 to 30. Claim 44 related to a method of identifying DNA sequences comprising a DNA region encoding a polypeptide exhibiting GA 20-oxidase activity and claim 45 related

to a DNA sequence obtainable by the method according to claim 44.

VIII. Document (1):

Graebe, J.E. et al., Gibberellins; Symposium, Tokyo, Japan. July 20 to 23, 1989, Takahashi, N. et al., Editors, Springer Verlag, pages 51 to 61.

is mentioned in this decision.

IX. The Appellants' arguments in writing and during oral proceedings with regard to the admissibility of the appeal and to the patentability of the claimed subject-matter may be summarized as follows:

– The mentioning in the notice of appeal, of "Novartis AG" rather than of the Applicants "Long Ashton Research Station" could only be understood as a mistake. Indeed, it was straightforwardly derivable from the content of the file that the Applicants never envisaged to transfer the patent application to any other firm. Furthermore, there was no doubt that the Applicants' representative was fully aware that an appeal could only be filed by a party adversely affected by the proceedings (Article 107 EPC). In accordance with the case law (T 97/98 of 21 May 2001), such a mistake as had occurred could be corrected under Rule 65(2) EPC taken in conjunction with Rule 64(a) EPC. For this reason, the mentioning of the "wrong Appellants" in the notice of appeal did not affect the admissibility of the appeal.

Document (1) did not destroy the novelty of the claimed polypeptide with GA 20-oxidase activity (claim 13). Indeed, while it listed the steps of a possible purification process for the GA 20-oxidase, it gave insufficient details for the skilled person to be able to reproduce said process.

Furthermore, all that had been obtained was either a mixture of proteins (purification factor: 52 fold, Table 2, page 59) or a further purified fraction which had not been shown to have GA 20-oxidase activity. This fraction could well be inactive taking into account the authors' warning that the enzyme was prone to instability. The silver-stained bands observed when the fraction was run on an SDS-PAGE gel needed not be proteins. If they were, there was no evidence that any one of them could ever be renatured, a fortiori that any one of them corresponded to the sought for, active enzyme.

Each of the bands could correspond to more than one moiety.

Thus, it could not be concluded that document (1) taught a GA 20-oxidase in a reproducible manner nor that it made available to the skilled person a preparation from which the enzyme could be retrieved and analysed in a straightforward manner.

– Document (1) was the closest prior art. Starting from its teachings, the problem to be solved could be defined as providing a GA 20-oxidase in workable quantities. The solution was to clone the gene encoding said enzyme in order to express it by recombinant means.

This cloning required that the GA 20-oxidase be available from its natural source in a sufficient amount and in a sufficiently purified form that it could be used for devising the means to screen for the GA 20-oxidase encoding DNA (DNA probes, antibodies...). Yet to obtain the natural enzyme was not an obvious task for the reasons given when dealing with the novelty issue. Therefore, the cloning per se was not obvious and inventive step must be acknowledged.

X. The Appellants requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 45 and amended description filed at the oral proceedings.

Reasons for the decision

Admissibility of the appeal

1. Article 107 EPC defines the persons entitled to appeal as "any party to the proceedings adversely affected by a decision". In accordance with the case law (eg T 656/98 of 18 May 2001), it must be possible to determine precisely and easily who is this party. In the present case, the notice of appeal is in the name

of the firm "Novartis AG" whereas the application as refused by the Examining Division is in the name of the firm "Long Ashton Research Station". Unless it can be established that it was a mistake rectifiable under Rule 65(2) EPC to file an appeal in the name of the firm "Novartis AG", the appeal may be found not admissible because it was filed by a party who was not adversely affected by the decision.

2. The information on file shows without any ambiguity that the application was originally filed in the name of "Long Ashton Research Station" (cover page of the published version of the corresponding international application WO 94/28141). The entry into the regional phase before the EPO is carried out in the name of the same Applicants. Up till now, the application is in that name as can be seen in the European Patent Register. The notice and the grounds of appeal are filed by the same representative as was authorized by "Long Ashton Research Station" to handle the case upon entry into the regional phase before the EPO, the grounds of appeal being, contrary to the notice of appeal, in the name of "Long Ashton Research Station" (page 5 of the grounds of appeal).

3. In response to the Board's communication pointing out to the above mentioned discrepancy, the new representative of "Long Ashton Research Station" submitted evidence from the Applicants that it had never been their intention to transfer the application to another firm, and from the former representative who had filed the notice appeal, that the identification of the Appellants as "Novartis AG" had been a mistake.

4. On the basis of the above evidence, for theses reasons, the Board is satisfied that the true Appellants are in fact the firm "Long Ashton Research Station" ie the party which was directly affected by the decision of refusal of the Examining Division, and, thus, a correction under Rule 65(2) EPC is allowable.

5. The requirements of Article 107 EPC are fulfilled as well as all further pre-requisites for admissibility. The appeal is admissible.

Formal requirements; Articles 123(2) and 84 EPC

6. The subject-matter of claim 1 finds a basis in originally filed claim 1 together with the last full paragraph on page 4 and the last paragraph on page 2 of the application as filed, The subject-matter of claims 8 to 10 and claim 13 finds a basis in originally filed claims 8 to 10 and claim 14 together with the above mentioned paragraphs. Claims 2 to 7, 11 and 12, 14 to 45 respectively correspond to originally filed claims 2 to 7, 11 and 12, 15 to 43, 45 to 47. The requirements of Article 123(2) EPC are fulfilled.

7. The claims are clearly worded. The reference to percentages of homology to a given sequence used to define the claimed DNA and polypeptides makes them of a very wide scope. Yet, as the molecules are also defined in terms of their capacity to encode polypeptides with GA 20-oxidase activity (DNA claims) or as having GA 20-oxidase activity (protein claims) and these activities appear to be readily measurable (eg. Examples 1 to 3), the Board is satisfied that the skilled person could identify the claimed molecules in a straightforward

manner. The claimed subject-matter finds support in the description. The requirements of Article 84 EPC are fulfilled.

Substantive requirements

Article 83 EPC; reproducibility of the claimed subject-matter

8. No objection was ever raised by the Examining Division as to the feasibility of obtaining DNA sequences encoding polypeptides exhibiting GA 20-oxidase activity and, of producing said polypeptides. The Board is also convinced that the claimed subject-matter is reproducible starting from the information given in the patent specification including the sequences of DNAs encoding GA 20-oxidases. The requirements of Article 83 EPC are fulfilled.

Article 54 EPC; novelty

9. Claim 13 relates to a GA 20-oxidase which is said to be recombinantly produced ie is characterised as being the result of a process. As has already been explained in other decisions of the Boards of Appeal (eg T 412/93 of 21 November 1994; point 33 of the reasons), a "process feature in a product claim can only be relied on for establishing novelty over the prior art, where use of that process necessarily means that the product has a particular characteristic..." This has not been demonstrated here. Document (1) which is concerned with the natural GA 20-oxidase from pumpkin endosperm (named GA C-20 hydroxylase, pages 59 and 60) was, thus, considered by the Examining Division to be damaging to the novelty of the claimed subject-matter (then

claim 14). In their view, the GA 20-oxidase could be retrieved in a conventional manner from the enzyme preparations disclosed in said document ie had already been made available to the public and its structure could be analysed.

10. Document (1) (pages 59 and 60) indeed lists the steps of a method for the purification of the GA 20-oxidase from pumpkin endosperm. Two preparations are described: the first one is said to have been **partially purified** (52-fold; Table 2) and is characterized by its specific activity. The second one is said to have been obtained from the first by hydrophobic interaction and gel filtration HPLC. It is characterized as exhibiting two silver-stained bands when run on SDS-polyacrylamide gel but it is **not shown** to have GA 20-oxidase activity. No experimental details are given on how to perform the listed steps. The authors emphasize that the pumpkin enzyme is prone to inactivation.

11. Even if, for the sake of argument, it is accepted that the method leading to the first, partially purified preparation is reproducible without undue burden, there remains that the **only proposed** steps for retrieving the enzyme from said preparation leads to a fraction which **is not demonstrated** to have any GA 20-oxidase activity. A possible loss of activity due to the purification itself cannot be disregarded since the enzyme is said to be labile.

12. Even if, for the sake of argument again, it is accepted that the above mentioned purified fraction has GA 20-oxidase activity, a teaching is missing of how one should proceed, once this fraction has been loaded on a

denaturing gel, to retrieve the two proteins which are visible on the gel in renatured form. A fortiori, it is not shown that one of them, if any, would be the GA 20-oxidase.

13. It must, thus, be concluded that neither the first preparation (by virtue of being only partially purified), nor the further purified fraction (which is not known to be active) amounts to a clear and unambiguous disclosure of a GA 20-oxidase. The enzyme, thus was not made available to the public in the sense required for the teachings of document (1) to be detrimental to novelty.

14. There are no other documents on file which would be relevant to the novelty of the GA 20-oxidase. Nor are there any documents relating to the encoding DNA. The requirements of Article 54 EPC are fulfilled.

Article 56 EPC; inventive step
Claim 1

15. The closest prior art is document (1), the contents of which are described in point 10 supra.

16. Starting from the closest prior art, the problem to be solved may be defined as the provision of an enzyme with GA 20-oxidase activity.

17. The provided solution is to clone the DNA encoding a GA 20-oxidase and express the protein.

18. This cloning, of course, requires that the GA 20-oxidase DNA be identified. A number of methods were

available at the priority date to accomplish such a task (patent application, pages 7 to 9): a partial sequence of the GA 20-oxidase may be identified, on the basis of which DNA probes could be constructed which would be used for the screening of cDNA or genomic clones. Alternatively, the partial amino acid sequence could be used for devising primers for a PCR or RT-PCR reaction which would amplify said DNA and facilitate its cloning. Finally, one could also proceed by in vitro translation of the cloned DNA whereby the positive clones could be identified as capable of specifically binding anti-GA 20-oxidase antibodies (Example 2 of the application). All of these conventional methods have in common that they require the natural GA 20-oxydase to have been purified in order to be able to determine its partial sequence or to raise antibodies.

19. As already mentioned in relation to the issue of novelty, the prior art at the priority date did not disclose how to obtain the natural enzyme. And besides, there are doubts that any of the then available techniques may have been useful for this purpose (see points 11 and 12 supra). For these very reasons, the skilled person would not have had a reasonable expectation of success in obtaining the natural enzyme and, therefore, in cloning its encoding DNA and expressing it.

20. There are no documents on file, the teachings of which could be combined with that of document (1) in such a way as to make the GA 20-oxidase DNA of claim 1 obvious. The requirements of Article 56 EPC are fulfilled.

Claim 13

21. For the reasons given in points 11 and 12 above in the context of assessing novelty, it is concluded that obtaining the GA 20-oxydase, whether it be from natural sources or in a recombinant form (ie starting from the natural enzyme) is a task which cannot be performed without exercising inventive skills. Inventive step is acknowledged to the subject-matter of claim 13.

Other claims

22. Claims 1 to 10, 14 to 18 which are respectively dependent on claims 1 and 13 enjoy inventive step. The subject-matter of independent claims 11 and 12, 19 to 44 which refer to claim 1 or 13 cannot be put into practice unless the DNA according to claim 1/fragments thereof or the polypeptide according to claim 13 is available. Inventive step is, thus, also acknowledged in their respect.

For these reasons, it is concluded that the claimed subject-matter is patentable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of the claims and description as requested.

The Registrar: The Chairwoman:

P. Cremona U. Kinkeldey