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D E C I S I O N
of 8 July 2003

Case Number: T 0064/00 - 3.3.8

Application Number: 89309069.6

Publication Number: 0359472

IPC: C12N 15/32

Language of the proceedings: EN

Title of invention:
Synthetic insecticidal crystal protein gene

Patentee:
Mycogen Plant Science, Inc.

Opponents:
Bayer BioScience N.V.
Syngenta Participations AG
Monsanto Company

Headword:
Insecticidal plant expression/MYCOGEN

Relevant legal provisions:
EPC Art. 69, 84, 102(3)

Keyword:
"Main and auxiliary requests - clarity (no)"

Decisions cited:
T 0301/87, G 0009/91

Catchword:
-



Case Number: T 0064/00 - 3.3.8

D E C I S I O N
of the Technical Board of Appeal 3.3.8
of 8 July 2003

Appellant: Mycogen Plant Science, Inc.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted 22 October 1999
revoking European patent No. 0359472 pursuant
to Article 102(1) EPC.**

Composition of the Board:

Chairman: L. Galligani
Members: P. Julia
C. Rennie-Smith

Summary of Facts and Submissions

I. An appeal was lodged by the patentee (appellant) against the decision of the opposition division dated 22 October 1999 by which European patent No. 0 359 472 was revoked on the grounds that the subject matter of the granted claims contravened the requirements of Article 100(c) EPC and that none of the auxiliary requests on file satisfied the formal requirements of the EPC.

II. The opposition division did not find a basis in the application as filed for claim 1 as granted (Article 123(2) EPC), which read as follows:

"1. A modified Bt insecticidal protein gene, the coding region of which has an A+T content no greater than 60%."

Claims 2 to 11 comprised specific embodiments of claim 1, wherein dependent claim 6 read :

"6. A modified Bt insecticidal protein gene according to claim 1 wherein the A+T content of said coding region is approximately 55%."

Claims 12 to 28 as granted were directed to further embodiments related to claims 1 to 11, such as a recombinant DNA cloning vector comprising the modified Bt insecticidal protein gene (claim 12), a plant (monocot, dicot, maize) cell containing the modified Bt insecticidal protein gene (claims 13 to 18), a method of producing a protein toxic to an insect using these

plant cells (claim 19) and a method of producing a gene encoding this insecticidal protein (claims 20 to 28). The auxiliary requests 1 to 3 then on file were also found to offend against Article 84 and/or Article 123(2) EPC.

- III. With the statement of Grounds of Appeal, the appellant filed four auxiliary requests. Comments on the statement of Grounds of Appeal were submitted by all respondents (opponents 01 to 03/respondents I to III).
- IV. A communication pursuant to Article 11(2) of the Rules of Procedure of the Board of Appeal was issued by the Board, wherein the main points to be discussed at the oral proceedings were summarized.
- V. In reply to the Board's communication, the appellant filed a fifth, sixth and seventh auxiliary requests and respondents I and III submitted further comments.
- VI. Oral proceedings were held on 8 July 2003. At the oral proceedings, the appellant withdrew all previous requests on file and filed a new main request and an auxiliary request based respectively on its earlier fifth and seventh auxiliary requests with some amendments.
- VII. Claim 1 of the **main request** filed at the oral proceedings read:

"1. A gene encoding an insecticidal protein, said gene being a Bt insecticidal protein gene which has been modified such that its coding region has an A+T content substantially equal to that of genes for highly

expressed plant proteins, said A+T content being no greater than 60%."

VIII. Claim 1 of the **auxiliary request** filed at the oral proceedings read:

"1. A gene encoding an insecticidal protein, said gene being a Bt insecticidal protein gene which has been modified such that the A+T content of the coding sequence of said gene is approximately 55%, but no greater than 60%."

IX. The arguments of the appellant insofar as they are relevant to the present decision may be summarized as follows:

Main request

There was established case law of the Boards of Appeal accepting the use of the term "substantially". The wording "substantially equal" would be easily understood by the skilled person and it did not introduce any unclarity into the claim. In the light of the description, the A+T content of genes for highly expressed plant proteins was known to the skilled person and it could not be made dependent on a changing or evolving prior art because there was an unambiguous disclosure of a specific value in the description of the patent in suit.

Auxiliary request

Insofar as the subject-matter of claim 1 only represented a combination of granted claims 1 and 6,

lack of clarity could not be an issue for this claim. Claim 1 was addressed to a person skilled in the art who would have no difficulty in interpreting the indicated numerical range in the light of the description - in particular the last paragraph on page 8 of the patent in suit - and common sense.

- X. The arguments of the respondents in writing and during the oral proceedings insofar as they are relevant to the present decision may be summarized as follows:

Main request

There was no indication in the patent in suit of the meaning of "substantially equal". This lack of clarity was not overcome by further reference to "genes for highly expressed plant proteins", which was in itself ambiguous insofar as there was no indication of which plants had to be considered, which genes were actually meant and under which conditions their expression had to be taken into account (tissue, time, etc...). Moreover, this definition implied that the actual value of the A+T content would be subject to the evolving knowledge of plant genes of the prior art and thus it could not be a constant value.

Auxiliary request

Claim 6 as granted indicated a preferred value within the range defined in granted claim 1 but not a lower limit of this range. Claim 1 of the auxiliary request, by defining such a lower limit, was not a mere combination of granted claim 1 and 6 and the objection under Article 84 EPC did arise out of the amendment. It

was established case law that the use of general terms such as "approximately" for defining the boundaries of ranges was not allowed. The combination of this term with the defined upper limit - "but no greater than 60%" - made the boundaries of the numerical range, in particular the lower limit, unclear.

- XI. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of either the main or first auxiliary request filed during the oral proceedings.

The respondents requested that the appeal be dismissed.

Reasons for the Decision

Articles 123(2)(3) EPC

Main and Auxiliary requests

1. In view of the board's findings on Article 84 EPC, the board does not deem it necessary to discuss the objections raised under Articles 123(2)(3) EPC.

Article 84

Main request

2. Article 84 EPC requires the claims to be clear, concise and supported by the description, whereas Article 69 EPC, which refers to the extent of protection conferred by a European patent, states that the description and drawings shall nevertheless be used to interpret the claims.

3. The A+T content of the coding region of the Bt insecticidal protein gene is the essential technical feature characterizing the subject matter of claim 1. This feature is defined as being "*substantially equal to that of genes for highly expressed plant proteins, said A+T content being no greater than 60%*". The specific value of the A+T content of genes for highly expressed plant proteins is not explicitly given in the claim and thus, it needs to be interpreted in the light of the description or, if the description does not allow such an interpretation, in the light of common general knowledge in the art.

4. Page 8, lines 52 to 53 of the description of the patent in suit reads "*In genes encoding highly expressed plant proteins, the A+T content is approximately 55%*". The disclosure of a specific value in the patent in suit obviates the need to resort to common general knowledge and avoids ambiguous interpretations. Thus, in the light of the description, the A+T content characterizing the claimed subject matter is understood to be *substantially equal to approximately 55%, but no greater than 60%*.

5. No definition is found in the description of the patent in suit that could help the skilled person to interpret the exact meaning of "*substantially equal*" in the context of the patent in suit. It is left to the common sense of the skilled person to determine the degree of variation of the A+T content required or implied by the wording "*substantially equal*" and to assess whether or not a particular value of the A+T content falls within this term. The fact that only an approximate value of the A+T content of genes for highly expressed plant

- proteins is disclosed in the patent in suit - *approximately 55%* - also helps to blur the actual limits of the value of the A+T content.
6. It is the understanding of the board that, if any, this wording would be interpreted by the person skilled in the art as comprising a narrow range of possible values of the A+T content and that this narrow range should be very close to the specific value disclosed in the patent in suit, ie an A+T content of 55%. The presence in the claim of an explicit upper limit to this range gives an indication of its intended width. However, this common sense interpretation of "*substantially equal*" is contradicted by the definition of this upper limit - "no greater than 60%" - which is almost 10% greater than the specific value disclosed in the patent in suit.
 7. More importantly, no lower limit is explicitly indicated in the claim. However, it is logical to assume that the interpretation of "*substantially equal*" applied to the upper limit will similarly apply to the lower limit of the A+T content, ie almost 10% lower than the specific value disclosed in the patent in suit. Thus, the result would be a range of the A+T content going from 50% to 60%. This broad range stands in complete contradiction to any sensible interpretation of the meaning of the terms "*approximately*" and "*substantially equal*".
 8. In view of the foregoing, the board concludes that claim 1, and thus the main request which comprises that claim, does not fulfil the requirements of Article 84 EPC.

Auxiliary request

9. It has been argued that claim 1 of this request cannot be open to an objection under Article 84 EPC since it is a combination of granted claims 1 and 6.

10. According to T 301/87 (OJ EPO, 1990, 335; point 3.8 of the reasons), "when amendments are made to a patent during an opposition, Article 102(3) EPC requires consideration by either instance as to whether the amendments introduce any contravention of any requirement of the Convention, including Article 84 EPC; however, Article 102(3) EPC does not allow objections to be based upon Article 84 EPC, if such objections do not arise out of the amendments made" (cf also G 9/91, OJ EPO, 1993, 408; point 19 of the reasons).

11. In the present case, whereas granted claim 6 indicated a specific value of the A+T content (approximately 55%) which represented a **preferred embodiment** falling within the range of the A+T content defined in granted claim 1 (no greater than 60%), in claim 1 of the present auxiliary request that specific value represents a lower limit of the range. This amendment actually changes the nature of the subject-matter of granted claim 1 by changing the character of the original range, which only referred to an upper limit of the A+T content but not to a lower limit, to a newly created range with both upper and lower limits. Thus, the board considers that the objection under Article 84 EPC arises directly out of the amendment and has to be considered by the board under Article 102(3) EPC.

12. Leaving aside the question whether such a newly created range has a basis as such in the application as filed, it is noted that claim 1 of the present auxiliary request defines the A+T content of the coding sequence of the Bt insecticidal protein gene as being "*approximately 55%, but no greater than 60%*". The board considers that a sensible interpretation of the word "*approximately*" is expressly contradicted by the reference to an upper limit which is almost 10% greater than the specific value disclosed in the claim. Moreover, the definition of this upper limit implies an interpretation of the term "*approximately*" that makes ascertaining a reasonable value for a lower limit of the A+T content completely unclear and ambiguous (cf points 6 and 7 *supra*).
13. This unclarity is not removed by making reference to the last paragraph on page 8 in the description of the patent in suit. As in granted claim 1, this paragraph refers to a range of the A+T content with a defined upper limit - no more than about 60% - and, as in granted claim 6, to a preferred specific value within this range - more preferably about 55%. However, and contrary to the situation found in claim 1 of the present auxiliary request, there is no combination between the preferred specific value and the indicated range, in the sense that the former is not used to interpret the latter.
14. Thus, the board concludes that claim 1, and thus this auxiliary request which comprises that claim, does not fulfil the requirements of Article 84 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar:

The Chairman:

A. Wolinski

L. Galligani