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**Datasheet for the decision
of 17 January 2017**

Case Number: T 1320/13 - 3.3.04
Application Number: 08798791.3
Publication Number: 2187728
IPC: A01H5/00, A23C11/10, A01H5/10,
A23J1/14
Language of the proceedings: EN

Title of invention:

Increased alpha-prime beta-conglycinin soybeans

Applicant:

Monsanto Technology, LLC

Headword:

Modified soybeans/MONSANTO

Relevant legal provisions:

EPC Art. 83, 123(2)
RPBA Art. 13(1)

Keyword:

Sufficiency of disclosure - auxiliary requests 3 and 4 (no)
Amendments - added subject-matter - main request, auxiliary
request 2 (yes)
Late-filed auxiliary requests 1 and 5 - admitted (no)

Decisions cited:

T 0002/81

Catchword:



Beschwerdekammern
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Chambres de recours

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Case Number: T 1320/13 - 3.3.04

D E C I S I O N
of Technical Board of Appeal 3.3.04
of 17 January 2017

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 on 22 January 2013
refusing European patent application No.
08798791.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairwoman G. Alt
Members: M. Montrone
M.-B. Tardo-Dino

Summary of Facts and Submissions

- I. The appeal was lodged by the applicant (hereinafter "appellant") against the decision of the examining division to refuse European patent application No. 08 798 791. The application was filed as an international application and published as WO 2009/035852 (hereinafter "the application") with the title "*Increased alpha-prime beta-conglycinin soybeans*".
- II. In its decision the examining division dealt with a single claim request. It took the view that claims 1 and 5 related to added subject-matter and that the subject-matter of claim 1 was not disclosed in the application in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
- III. With the statement of grounds of appeal, the appellant submitted a new claim request which corresponded to the request dealt with in the decision under appeal except for claim 2, which was newly introduced.
- IV. The appellant was informed of the board's preliminary view in a communication pursuant to Article 15(1) RPBA. The board observed *inter alia* that the feature "about 0.6 and about 1" in claim 1 did not meet the requirements of Article 123(2) EPC and that it appeared doubtful that the application disclosed the subject-matter of claim 1 in such a manner that the requirements of Article 83 EPC were fulfilled.
- V. In reply to the board's communication the appellant submitted a new main request and three auxiliary requests.

VI. Oral proceedings before the board were held on 17 January 2017. With regard to Article 83 EPC the board raised a new argument, namely that it appeared that soybean plants characterised by a ratio of α - and α' -subunit levels in the β -conglycinin trimer below the value of 0.6 were not obtainable when following the teaching of the application. The appellant filed auxiliary requests 3 and 5 during the oral proceedings, the former to address an objection under Article 123(2) EPC and the latter to address an objection under Article 83 EPC. Furthermore, auxiliary request 3 submitted with the appellant's reply to the board's communication was re-numbered as auxiliary request 4. At the end of the oral proceedings the chairwoman announced the board's decision.

Claim 1 of the main request filed with letter of 16 January 2017 reads:

"1. A soybean plant capable of producing seeds comprising a glycinin content of between 4% and 20% of the total protein and a β -conglycinin content of greater than 20% of the total protein, wherein the α -subunit level and the α' -subunit level in the β -conglycinin trimer are in the ratio of between 0.6 and 1, and wherein the α' -subunit level is less than 30% of the total seed protein."

The subject-matter of claim 1 of auxiliary request 1 differs from that of the main request in that the feature "less than 30%" has been replaced by "between 15% to 30%".

The subject-matter of claim 1 of auxiliary request 2 differs from that of the main request in that the features "between 0.6 and 1" and "less than 30%" have

been replaced by "between 0.3 and 0.8" and "between 15% to 30%", respectively.

Claims 3 and 5 of auxiliary request 2 read:

"3. The soybean plant of claim 1, wherein the α -subunit level and the α' -subunit level in the β -conglycinin trimer are in the ratio of between 0.6 and 0.8.

5. The soybean seed of claim 4, wherein the α -subunit level and the α' -subunit level in the β -conglycinin trimer are in the ratio of between 0.6 and 0.8."

The subject-matter of claim 1 of auxiliary request 4 differs from that of auxiliary request 2 in that the product-by-process features "said soybean plant being obtainable by

(a) crossing a glycinin-null plant with a plant capable of yielding seeds comprising an increased β -conglycinin α' -subunit content relative to that of the α -subunit;

and

(b) selecting a progeny seed comprising an α' -subunit content higher than that of either of its parents" have been added at the end of the claim.

The subject-matter of claim 1 of auxiliary request 3 is identical to that of auxiliary request 2.

The subject-matter of claim 1 of auxiliary request 5 differs from that of auxiliary requests 2 and 3 in that the feature "wherein the α -subunit level and the α' -subunit level in the β -conglycinin trimer are in the ratio of between 0.3 and 0.8" has been replaced by the feature "wherein the α' -subunit level is at least equal, on a percentage of total seed protein basis, to that of the α -subunit in the β -conglycinin trimer".

VII. The appellant's arguments may be summarised as follows:

Admission of the main request and auxiliary requests 1 to 5

The main request and auxiliary requests 1 to 5 were submitted in an attempt to overcome objections under Articles 123(2) or 83 EPC raised either by the board in its communication or during the oral proceedings.

Amendments (Article 123(2) EPC)

In the following, the references are to passages and claims of the application as filed.

Main request

The range of ratios of the α - and α' -subunit levels in the β -conglycinin trimer of "between 0.6 and 1" cited in claim 1 had a basis in the disclosure of the range of "about 0.1 and about 1" in claim 5 in conjunction with the value "0.6" disclosed on page 5 in line 12 of the application. Although page 5 disclosed a list of individual values but no range, the skilled person did nevertheless understand that these values represented end-points of sub-ranges in view of the ranges disclosed in claims 5, 6 and 10. Thus the amended range had a direct and unambiguous disclosure in the application in accordance with the criteria set out in decision T 2/81.

Auxiliary request 2

The range of ratios of the α - and α' -subunit levels in the β -conglycinin trimer of "0.6 and 0.8" cited in claims 3 and 5 was based on the disclosed range of

"about 0.3 and about 0.8" in claim 6 in conjunction with the disclosure of the value "0.6" in line 12 on page 5 of the application.

Sufficiency of disclosure (Article 83 EPC)

Auxiliary request 3 - claim 1

Claim 1 was directed to soybean plants producing seeds with defined glycinin and β -conglycinin contents, wherein the ratio of the α - and α' -subunit levels in the β -conglycinin was between 0.3 and 0.8, *i.e.* the plants were characterised by an "increased α' -subunit of β -conglycinin content" (page 1 of the application, lines 12 and 13) compared to most soybean plants.

The application disclosed that the plants of the invention were reliably obtained by (i) crossing soybean plants characterised by an increased α' - compared to the α -subunit level in the protein β -conglycinin ($\alpha:\alpha'$ ratio), *i.e.* an increased α' -subunit phenotype, with (ii) soybean plants characterised by a reduced glycinin and an increased β -conglycinin content, *i.e.* a reduced glycinin phenotype (heading of Table 2).

Table 1 disclosed that the majority of plants with the trait PI88788 in their lineage contained in their seeds $\alpha:\alpha'$ ratios in β -conglycinin of between 0.7 and 0.9, and thus represented plants with an increased α' -subunit phenotype. Furthermore, Table 2 reported that by crossing these plants with plants characterised by a reduced glycinin phenotype, plants were obtained with an $\alpha:\alpha'$ ratio in the β -conglycinin of 0.6.

Accordingly, by applying the methods disclosed in the application, the skilled person would have obtained plants with $\alpha:\alpha'$ ratios in β -conglycinin between 0.6 to 0.8 in their seeds, *i.e.* in the upper half of the range "between 0.3 and 0.8" cited in claim 1. Plants with seeds containing $\alpha:\alpha'$ ratios of 0.3 to 0.5, *i.e.* in the lower half of the range cited in claim 1, were not disclosed in the application. However, this was not an indication that plants with these low $\alpha:\alpha'$ ratios could not be obtained by the skilled person following the instructions disclosed in the application. The skilled person merely had to screen a sufficiently high number of plants with the trait PI88788 to identify those with sufficiently low $\alpha:\alpha'$ ratios in order to obtain plants with seeds containing $\alpha:\alpha'$ ratios in the lower half of the range cited in claim 1.

- VIII. The appellant requested that the decision under appeal be set aside and that the case be remitted to the department of first instance with the order to grant a patent on the basis of the main request or on the basis of one of auxiliary requests 1, 2 and 4 (former auxiliary request 3), all submitted with the letter of 16 January 2017, or on the basis of one of auxiliary requests 3 and 5, both filed during the oral proceedings.

Reasons for the Decision

Admission of the main and auxiliary requests 1 to 5

1. The boards of appeal have discretion over whether or not to admit any amendment to a party's case after it has filed its grounds of appeal or its reply to the other party's statement of grounds of appeal in *inter partes* proceedings (Article 13(1) RPBA). This

discretion is to be exercised in view of *inter alia* the complexity of the new subject-matter submitted and the state of the proceedings.

2. The main request and auxiliary requests 1, 2 and 4 were filed one day prior to the oral proceedings, while auxiliary requests 3 and 5 were filed during the oral proceedings. Accordingly, all requests are to be regarded as amendments to the appellant's case (Article 13(1) RPBA).
3. Auxiliary request 1 was submitted by the appellant to overcome an objection under Article 123(2) EPC.
4. As a basis for the range "between 15% to 30%" referred to in claim 1, the appellant indicated the identical range disclosed in claim 12 as filed. However, the subject-matter of claim 12 as filed - due to its back-reference to claim 11 - is defined by several features, including the $\alpha:\alpha'$ ratio in β -conglycinin in the range of "between about 0.3 and about 0.8", which differs from the range in the ratio of "between 0.6 and 1" cited in claim 1. Accordingly, claim 1 is directed to plants defined by a new combination of features for which a basis in the application as filed is not *prima facie* apparent to the board.
5. Auxiliary request 5 was submitted by the appellant to overcome an objection under Article 83 EPC.
6. The subject-matter of claim 1 differs from that of claim 1 of auxiliary request 3 in that the range of ratios of "between 0.3 and 0.8" is replaced by the feature "wherein the α' -subunit level is at least equal, on a percentage of total seed protein basis, to that of the α -subunit in the β -conglycinin

trimer" (emphasis added). In the appellant's view, the indication of "at least equal" in the feature above implied that the levels of the α' - and α -subunits in β -conglycinin were defined by a range starting from equal levels of both subunits up to a complete lack of α -subunits in β -conglycinin. In other words, when converted into a corresponding numerical range of α - to α' -subunit ratios, claim 1 related to a range of "0 to 1". However, when deciding on the admission of auxiliary request 5 at the oral proceedings, the board had already concluded that the range "0.3 and 0.8" cited in claim 1 of auxiliary request 3 encompassed in its lower half embodiments which could not be obtained by the skilled person without undue burden (see points 31 and 34 below). Accordingly, since claim 1 of auxiliary request 5 was directed to an even broader range of α - to α' -subunit ratios, it was *prima facie* apparent that its filing was not appropriate to overcome the objection under Article 83 EPC.

7. Therefore, in exercising its discretion under Article 13(1) RPBA, the board decided not to admit auxiliary requests 1 and 5 into the appeal proceedings.
8. The main request and auxiliary requests 2 to 4 were admitted into the appeal proceedings.

Main request

Amendments (Article 123(2) EPC)

9. In the following, the references are to passages and claims of the application as filed.

10. Article 123(2) EPC stipulates that the application shall not be amended so as to contain subject-matter which extends beyond the content of the application as filed. It is established case law of the boards of appeal that amendments can be made only within the limits of what the skilled person would derive directly and unambiguously, using common general knowledge, from the explicit and implicit disclosure of the application as filed (see Case Law of the Boards of Appeal of the European Patent Office, 8th edition 2016 (hereinafter "CLBA"), II.E.1.2.1, II.E.1.2.2).
11. Claim 1 *inter alia* defines the α -subunit level and the α' -subunit level in the β -conglycinin trimer (hereinafter " $\alpha:\alpha'$ ratio") in the range of "between 0.6 and 1".
12. The appellant argued that, although this range was not explicitly disclosed in the application, it had a basis in the disclosure of the range "0.1 and about 1" in claim 5 in conjunction with the value "0.6" disclosed in a list on page 5, lines 12 and 13, which reads: "about 1.0, 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, 0.1 or even 0, derivable therein". The list of values disclosed on page 5 was understood by the skilled person to represent individual end-points of sub-ranges in view of the ranges disclosed in claims 5, 6 and 10, which could therefore be combined to define an amended range in line with the criteria set out in decision T 2/81.
13. The board is not convinced by this argument. The skilled person would not regard the list of individually disclosed values of ratios on page 5 of the application as individual end-points of ranges. Firstly, a list of individual values - even if

disclosed as here in descending order - does not relate to values that lie between them, while a range necessarily encompasses all the values that lie between its two disclosed end-points, i.e. a list of individual values is conceptually different from a range. Secondly, the list on page 5 of the application contains no pointers to a particular combination of ratio values. Accordingly, a specific selection of values also does not clearly and unambiguously emerge for the skilled person from the content of the application.

14. Therefore, the list of individually disclosed ratio values in the application on page 5 does not directly and unambiguously disclose end-points of ranges, let alone preferred ones. Consequently, the amended range "between 0.6 and 1" referred to in claim 1 would not have been recognised by the skilled person as singled out in the application.
15. In decision T 2/81 published in OJ 1982, 394, the board decided that the combination of end-points derived from a disclosed general range and a preferred part-range thereof was directly and unambiguously derivable from the application as filed (see point 3 of the Reasons). This situation, however, differs from the present one for the reasons set out in points 13 and 14 above and can therefore not be relied on by the appellant in support of its case.
16. The main request does therefore not fulfill the requirements of Article 123(2) EPC.

Auxiliary request 2

Amendments (Article 123(2) EPC)

17. Claims 3 and 5 *inter alia* define the $\alpha:\alpha'$ ratio in the range of "between 0.6 and 0.8".
18. The appellant argued that the amended range in claims 3 and 5 had a basis in claim 6, which disclosed the range of "0.3 and about 0.8" in conjunction with the value "0.6" disclosed in the list of individual values on page 5, lines 12 and 13, of the application.
19. However, for the reasons set out in points 13 to 15 above, the amended range of "between 0.6 and 0.8" cited in claims 3 and 5 is not directly and unambiguously derivable from the disclosure on page 5 of the application. Therefore, auxiliary request 2 does not meet the requirements of Article 123(2) EPC either.

Auxiliary request 3

Introduction to the invention

20. The invention concerns soybean plants capable of producing seeds which contain a reduced amount of the protein glycinin and an increased amount of the protein β -conglycinin compared to typical seeds. Moreover, the β -conglycinin, which is composed of α' , α and β -subunits, is characterised by an increased α' -subunit and a decreased α -subunit level compared to β -conglycinin in most seeds, while its β -subunit content is conserved (see e.g. page 5, line 2 of the application).

21. Glycinin and β -conglycinin are major storage proteins in soybeans. Typical beans contain around 40% glycinin and 20% β -conglycinin with an α' -subunit amount accounting for 9% of the total proteins (see page 26, lines 18 and 19 of the application). Moreover, in most seeds the ratio of α : α' subunits in β -conglycinin is 1.28, which corresponds to a relative percentage of 45% for the α - and 35% for the α' -subunit. The β -subunit accounts stably for 20% of the three subunits (see page 2, lines 14 to 16, page 23, lines 25 to 27, and page 24, lines 8 and 9 and 11 and 12 of the application).

22. The nutritional value of soybean proteins is partly dependent on their β -conglycinin-to-glycinin ratio and the subunit composition of β -conglycinin. It has been demonstrated, for example, that β -conglycinin, in particular its α' -subunit, has a higher nutritional value and positive impact on human health than glycinin, because it mediates *inter alia* a lowering of blood triglycerides and cholesterol (see page 2, line 17, to page 3, line 27 of the application).

Sufficiency of disclosure (Article 83 EPC)

23. Article 83 EPC stipulates that the application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Moreover, it is established case law of the boards of appeal that the application must contain sufficient information to allow a person skilled in the art, using his common general knowledge, to carry out the invention within substantially the whole area that is claimed without undue burden (see CLBA, II.C.4.4).

24. Claim 1 is directed to soybean plants capable of producing seeds containing a defined glycinin and β -conglycinin content, wherein the $\alpha:\alpha'$ ratio is characterised by the range of "between 0.3 and 0.8".
25. The application discloses that plants of the invention were obtained by "crosses between plants with reduced glycinin phenotype and plants with increased α' -subunit phenotype" (see heading of Table 2).
26. With regard to the first crossing partner, the application discloses that typical soybean plants produce seeds containing an $\alpha:\alpha'$ ratio of "1.28" and that seeds with a ratio "of less than 1" have an "increased α' -subunit content" (see page 23, lines 25 to 27, and page 26, lines 2 to 4) or in other words an increased α' -subunit phenotype. These plants were obtained after screening commercial soybean plants. The only plants characterised by an increased α' -subunit content which are disclosed in the application have "the trait PI88788 in their lineage" (see examples 1 and 2). Table 1 discloses that the $\alpha:\alpha'$ ratio in seeds of these plants varies between "1.4" and "0.7" and that 80% of them contain in their seeds $\alpha:\alpha'$ ratios between "0.7" and "0.9" (see columns headed "PI88788 in lineage" and " $\alpha:\alpha'$ ", and example 2).
27. Soybean plants with the trait PI88788 in their lineage (or other soybean plants) with an $\alpha:\alpha'$ ratio even lower than 0.7 are not disclosed in the application or in the cited prior art documents. This has also not been argued by the appellant.
28. With regard to the second crossing partner, the application reports that plants with a reduced glycinin phenotype (alternatively referred to as "glycinin

nulls", see page 26, lines 21 and 22) are "derived from B2G2" (see page 2, lines 6 to 9, and page 26, lines 21 to 23). These plants are characterised by a "reduced glycinin content and an increased β -conglycinin content" (see page 26, lines 21 and 22).

29. Table 2 discloses that after crossing about 200 plants "with a reduced glycinin phenotype and an increased α' -subunit phenotype", 51 of the obtained progenies disclose an $\alpha:\alpha'$ ratio of "0.6", 14 an $\alpha:\alpha'$ ratio of "0.7" and three an $\alpha:\alpha'$ ratio of "0.8" (see heading and columns headed "Female", "Male", "Progeny" and " $\alpha:\alpha'$ "). However, progeny plants with $\alpha:\alpha'$ ratios of below 0.6 are not disclosed in Table 2.

30. In the board's view, the skilled person would derive from the passages of the application cited in points 26 to 29 above that, firstly, only plants with the trait PI88788 in their lineage when compared to typical soybean plants have substantially reduced $\alpha:\alpha'$ ratios, i.e. down to a ratio of 0.7 instead of 1.28 on average (see Table 1). Secondly, the crossing of plants having this trait with plants characterised by a reduced glycinin phenotype (see Table 2) results at best in progenies characterised by an $\alpha:\alpha'$ ratio of 0.6, i.e. achieves a further reduction by 0.1, which, thirdly, indicates, that the contribution of the crossing step to a further reduction of the $\alpha:\alpha'$ ratio in the plants with the trait PI88788 in their lineage is almost negligible. It further follows from this, that, fourthly, the generation of plants with $\alpha:\alpha'$ ratios of between 0.6 and 0.8 as disclosed in Table 2 primarily relied on parental plants with the trait PI88788 in their lineage further characterised by an $\alpha:\alpha'$ ratio of 0.7.

31. Soybean plants with $\alpha:\alpha'$ ratios that are lower than 0.6, in particular between 0.3 and 0.5, are embodiments of claim 1 (see point 24 above). Given that plants with these properties are not disclosed in the application (see points 27 and 29 above), the question arises whether or not the skilled person is nevertheless able to obtain as embodiments of the invention plants with $\alpha:\alpha'$ ratios lower than 0.6. In view of the observations in point 30 above, this necessarily requires the availability of parental plants with the trait PI88788 in their lineage characterised by an $\alpha:\alpha'$ ratio of below 0.7.
32. The appellant argued that the skilled person merely had to screen a sufficiently high number of plants with the trait PI88788 in their lineage to find plants with this property.
33. The board is not convinced by this argument. The application, as noted in point 26 above, discloses in Table 1 that the $\alpha:\alpha'$ ratio in plants with this trait varies between "1.4" and "0.7". Assuming further that the plants disclosed in Table 1 are a representative sample of all plants with this trait, then the ratio of 0.7 actually represents the lowest natural $\alpha:\alpha'$ ratio to be found in these plants. In these circumstances it is highly unlikely that plants with an $\alpha:\alpha'$ ratio of below 0.7 exist, if they exist at all. Consequently, even a large-scale screening of plants with the trait PI88788 in their lineage for such a property would not necessarily lead the skilled person to success, which amounts to an undue burden.
34. Therefore, the board concludes that the application does not disclose the plants according to claim 1 in a manner sufficiently clear and complete for it to be

carried out by the person skilled in the art over substantially the whole ambit of the claim without undue burden. Consequently, auxiliary request 3 fails to meet the requirements of Article 83 EPC.

Auxiliary request 4

35. Claim 1 of auxiliary request 4 differs from that of auxiliary request 3 in that the product-by-process features "said soybean plant being obtainable by (a) crossing a glycinin-null plant with a plant capable of yielding seeds comprising an increased β -conglycinin α' -subunit content relative to that of the α -subunit; and (b) selecting a progeny seed comprising an α' -subunit content higher than that of either of its parents" are added.
36. Thus claim 1, despite these process features, is still directed to soybean plants capable of producing seeds containing a defined glycinin and β -conglycinin content, wherein the $\alpha:\alpha'$ ratio is characterised by the range of "between 0.3 and 0.8" (see point 24 above).
37. Accordingly, the reasons set out in points 25 to 33 above apply *mutatis mutandis* to the plants according to claim 1 of auxiliary request 4. Hence, this request likewise does not fulfill the requirements of Article 83 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar:

The Chairwoman:



P. Cremona

G. Alt

Decision electronically authenticated