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**Datasheet for the decision of 11 July 2025**

**Case Number:** T 2049/23 - 3.3.04

**Application Number:** 13703094.6

**Publication Number:** 2814316

**IPC:** A01H5/08, A01H1/02

**Language of the proceedings:** EN

**Title of invention:**
Triploid watermelon plants with a bush growth habit

**Patent Proprietor:**
Nunhems B.V.

**Opponents:**
Then, Christoph/"Keine Patente auf Saatgut!" e.V.

**Headword:**
Watermelon/Nunhems

**Relevant legal provisions:**
EPC Art. 52(2)(a), 53(b), 56, 100(a), 100(b)
EPC R. 26, 27, 28, 31

**Keyword:**

Patentable invention - discovery (no)
Exceptions to patentability - claims comprising but not limited to plant varieties (yes) - essentially biological process for the production of plants (no)
Inventive step - (yes)
Sufficiency of disclosure - (yes)

**Decisions cited:**

G 0001/98, G 0002/07, G 0001/08, G 0002/12, G 0003/12, G 0003/19, T 1729/06, T 0420/19

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**Case Number: T 2049/23 - 3.3.04**

# D E C I S I O N
# of Technical Board of Appeal 3.3.04
# of 11 July 2025

| | |
|---|---|
| **Appellants:** (Opponents) | Then, Christoph/"Keine Patente auf Saatgut!" e.V.<br>Frohschammerstr. 14<br>80807 München (DE) |
| **Respondent:** (Patent Proprietor) | Nunhems B.V.<br>Napoleonsweg 152<br>6083 AB Nunhem (NL) |
| **Representative:** | BASF IP Association<br>BASF SE<br>GBI - Z078<br>67056 Ludwigshafen (DE) |
| **Decision under appeal:** | **Decision of the Opposition Division of the European Patent Office posted on 20 October 2023 rejecting the opposition filed against European patent No. 2814316 pursuant to Article 101(2) EPC.** |

**Composition of the Board:**

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| **Chairwoman** | M. Pregetter |
| **Members:** | A. Chakravarty |
| | M. Blasi |

## Summary of Facts and Submissions

I. An appeal was filed by the joint opponents (appellants) against the opposition division's decision to reject the opposition against European patent No. 2 814 316, entitled "*Triploid watermelon plants with a bush growth habit*". The patent proprietor is respondent to this appeal.

II. The application underlying the patent was filed on 8 February 2013. The date of the mention of the grant of the patent was 7 April 2021.

III. In the decision under appeal, the opposition division considered and dismissed objections raised under the ground for opposition set out in Article 100(a) EPC, in conjunction with Article 53(b), first half-sentence, first alternative, EPC relating to plant varieties and with Article 53(b), first half-sentence, second alternative, EPC relating to essentially biological processes for the production of plants, as well in conjunction with Article 56 EPC. It also dismissed objections raised under Article 100(b) EPC.

IV. The notice of appeal was dated 18 December 2023 and was received on the following day. It includes a statement of the grounds of appeal, setting out the reasons why the appellants consider that the decision of the opposition division should be set aside. Contrary to the indication on page 1 of that letter, no further statement of grounds of appeal was filed.

V. The respondent replied to the appellants' notice of appeal.

VI. The board issued a summons to oral proceedings and a communication under Article 15(1) RPBA setting out its preliminary opinion on the appeal case.

VII. The appellants made a further submission in a letter dated 9 May 2025, in reaction to the preliminary opinion of the board. With this letter they submitted document D1a (which was an updated version of D1 that they had submitted in the proceedings before the opposition division and referred to as D20 in the notice of appeal).

VIII. The patent was granted with 19 claims.

Claim 1 reads:

"1. A plant of the species *Citrullus lanatus*, wherein said plant is triploid and has a *bush* growth habit, comprising three copies of a recessive allele designated *bush*, wherein said *bush* allele is obtainable by crossing a watermelon plant of which seeds were deposited under accession number NCIMB41906 or NCIMB41905 with another watermelon plant".

Claims 2 to 9 are dependent on claim 1 and further define the claimed plant.

Claims 10 to 12 read:

"10. Seeds from which a plant according to claims 1 to 9 can be grown.

11. A plant or seed of the species *Citrullus lanatus* wherein said plant is tetraploid and has a *bush* growth habit, comprising four copies of a recessive allele designated *bush*, wherein said *bush* allele is obtainable

by crossing a watermelon plant of which seeds were deposited under accession number NCIMB41906 or NCIMB41905 with another watermelon plant.

12. A tissue culture of regenerable cells of a plant of any one of the preceding claims."

Claim 13 is dependent on claim 12 and further defines the tissue culture.

Claims 14 to 17 read:

"14. A plant part of the plant according to any one of claims 1 to 11, wherein said part is selected from a scion, fruit, pollen, ovule, stem, cotyledon, leaf, cell embryos, meristems, anthers, roots, root tips, pistils, flowers, seed.

15. A watermelon plant regenerated from the tissue culture of claim 12 or 13, wherein the regenerated plant is a triploid or tetraploid and comprises a bush growth habit.

Claim 16 is dependent on claim 11 and further defines the claimed tetraploid plant in terms of longest vine length, average internode length on the longest vine and leaf dimensions.

17. A method for seedless triploid watermelon fruit production, said method comprising:
a) providing a triploid hybrid watermelon plant comprising a *bush* growth habit according to any one of claims 1 to 10;
b) interplanting said triploid hybrid plants with diploid pollenizer plants,

c) harvesting the seedless watermelon fruits produced on the triploid plants of (a)".

Claims 18 and 19 are dependent on claim 17 and further define the method.

IX. The following documents are referred to in this decision:

D1: "*Correct legal interpretation of Article 53(b), EPC, within the context of the EU patent directive 98/44 - Legal analysis provided by No Patents on Seeds!*", April 2021.

D4: EP 1 487 256 B1

D13: US 2004/0073978

D15: Yuge L. *et al.*, Horticultural Plant Journal, 2016,2 (4), 224-228.

D17: US PVP certificate for 'Bush Charleston Grey', 1983.

D18: Walters S.A. *et al.*, Climate, 2021, 9, 129.

D19: Yang H. *et al.*, Cucurbit Genetics Cooperative report, 2008-2009, 31-32, 11-14.

D20/D1a: "*Correct legal interpretation of Article 53(b), EPC, within the context of the EU patent directive 98/44 - Legal analysis provided by No Patents on Seeds!*", March 2023.

Note: D20 was submitted by the appellants-opponents on 27 July 2023 in the proceedings before the opposition

division and was also referred to in their notice of appeal. They refiled it once more as D1a with their letter dated 9 May 2025. It represents an updated version of D1.

X. The appellants' submissions are summarised as follows.

*Exception to patentability - Essentially biological processes for the production of plants (Article 100(a) and Article 53(b) first half-sentence, second alternative, EPC)*

The claimed subject-matter was excluded from patentability under Article 53(b) EPC because it related to essentially biological processes for the production of plants.

The objections regarding the exception to patentability under Article 53(b) EPC of essentially biological processes for the production of plants were not based on Rule 28(2) EPC and so the reference, in the decision under appeal, to the findings in decisions G 2/12 and G 2/13, and opinion G 3/19 was not sufficient to dismiss this ground for opposition. Instead, the legal interpretation outlined in D20 was adopted. In the present case, the processes used for the production of melons could not be regarded as a biotechnological invention under Rule 27 EPC or in light of decisions G 1/98, G 2/07, and G 1/08. As a result, the plants and breeding methods claimed in the patent were excepted from patentability under Article 53(b) EPC.

By reference to D20, the appellants also argued that account should be taken of the effect of Directive 98/44/EC on the interpretation of Article 53(b) EPC. It negatively affected the

allowability of claims directed to plants, plant material or animals derived from essentially biological processes in a way which was not tied to the date when Rule 28(2) EPC came into force. In fact, the intention of the EU legislator has not changed since the patent directive came into force, and the EU legislator never intended to allow patents on plants and animals derived from essentially biological processes. Therefore, the transitional period created by opinion G 3/19 should not be taken into account and it did not matter whether the patent applications were filed before or after July 2017.

Another line of argument was that the scope of the exception from patentability of processes for the production of plants under Article 53(b) EPC, addressed in decisions G 2/12, G 2/13, and opinion G 3/19 and its impact on the patentability of product claims and product-by-process claims was not the main reason why the claimed subject-matter was excepted from patentability. Instead, it was crucial to determine whether the process used in the patent constituted a patentable technical invention. Decisions G 2/07 and G 1/08 were particularly relevant for this assessment. Interpreting these decisions and taking D20 into account, it was clear that although technical steps (such as the production of triploid fruits or the induction of triploidy using colchicine) had been employed, these steps were not decisive for obtaining the inventive characteristics. Rather, they served as a 'technical topping' and were not sufficient to allow the process as a whole to be classified as biotechnological in its entirety. Thus, the claimed process was not a biotechnological invention and the provisions in Rule 27 EPC did not apply because these concerned only biotechnological inventions.

The claimed trait, bushy growth, was discovered rather than introduced by technical means. Although the claimed plants were triploid, and this was a technical characteristic added to the trait, it did not constitute the inventive trait itself. According to decisions G 2/07 and G 1/08, a breeding process for the production of plants could only escape the exceptions to patentability under Article 53(b) EPC if it included a technical step that "*by itself introduces a trait into the genome or modifies a trait in the genome of the plant produced*."

*Exception to patentability - Plant varieties (Article 100(a) and Article 53(b) EPC first half-sentence, first alternative, EPC)*

Rule 27(b) EPC provided a list of biotechnological inventions that were patentable as defined in Directive 98/44/EC. A biotechnological invention not falling in this list was automatically not patentable under Article 53(b) EPC.

The technical inventions that were not excepted from patentability under Directive 98/44/EC were those based on genetic engineering or the targeted modification of breeding traits. These required a clear characterisation of the relevant genetic information (see G 1/98, G 2/07 and G 1/08), i.e. the gene sequence must be known. This was not the case for the claimed subject-matter. The gene sequence responsible for the desired *bush* growth habit trait was unknown and as a result, the claimed genetic trait could only be transferred from one variety (the deposited seed material) to another variety through breeding (crossing and selection), but not by technical methods as defined

in Rule 27(b) EPC and was not exempt from the patenting ban under Article 53(b) EPC. The transfer of traits from one variety to another did not suffice to escape the prohibition of patenting plant varieties under Article 53(b) EPC.

Claims 1 to 16 related to plant varieties which were excepted from patentability under Article 53(b) EPC. The claimed plants were defined by heritable traits that distinguished them from other plants of the same species and were capable of stable inheritance, thus fulfilling the criteria of Rule 26(4) EPC.

The claimed traits were embedded in specific breeding lines and could only be transferred through conventional breeding methods. The invention did not involve the isolation or targeted modification of genetic material, nor did it provide a technical teaching enabling the transfer of traits across species boundaries. Consequently, the claimed subject-matter did not qualify as a biotechnological invention under Rule 27(b) EPC and the Directive 98/44/EC.

In view of the legislative intent behind Article 53(b) EPC, no interpretation of the exceptions to patentability that undermined the breeder's exemption enshrined therein should be adopted.

*Inventive Step (Article 100(a) and Article 56 EPC)*

The opposition division had been mistaken to recognise an inventive step for the claimed subject-matter. The *bush* growth trait was a naturally occurring characteristic, discovered in a home garden and was not the result of a technical development. The subsequent application of known polyploidy techniques did not

contribute to an inventive step. The opposition division had failed to apply the problem and solution approach to assess inventive step and had relied merely on phenotypic differences without demonstrating a technical advantage. The opposition division had acknowledged that dwarf melons with polyploid fruit, which require less space for cultivation were known in the art, e.g. D13 but that these existing melons did not render the claimed bushy melons obvious.

In its preliminary opinion, the board agreed with the opposition division's view. However, the opposition division had assessed obviousness from the perspective of a layperson not from that of a person skilled in the art, who in the present case was a trained plant breeder. Such a trained person would not have seen any problem whose solution was not obvious because all the steps needed to arrive at the claimed subject-matter were either not technical (i.e. they were a discovery) or they were simply the normal steps, including crossing and selection, that a trained plant breeder would have routinely done.

*Disclosure of the invention (Article 100(b) EPC)*

The patent did not sufficiently disclose the claimed invention. The genetic basis of the *bush* growth trait was not identified and the so-called "*bush* allele" was not characterised. As a result, the skilled person could not reproduce the claimed invention without undue burden. The lack of information on the genotype meant that reproducing the invention required extensive phenotypic testing, and it was unclear whether the trait was monogenic or involved complex inheritance patterns. In the absence of precise genotypic

information, the skilled person faced several technical challenges:
Determining whether the desired gene functions are stably inherited.
Assessing how frequently or in what percentage tests must be conducted to verify whether the progeny of the melons indeed exhibit the described characteristics.
Understanding whether any altered bushy growth (phenotype) in progeny from the deposited material is based on the traits described in the patent, interactions with the genetic backgrounds of other varieties, or additional effects.

*Request for Referral to the Enlarged Board*

In the event that the board did not agree with the appellants' interpretation of Article 53(b) EPC, questions of law should be referred to the Enlarged Board of Appeal (see section XII.).

XI. The respondent's submissions are summarised as follows.

*Exception to patentability - Essentially biological processes for the production of plants (Article 100(a) and Article 53(b) first half-sentence, second alternative EPC*

The opposition division was right to hold that the methods in claims 17 to 19 were not essentially biological processes for the production of plants and were not excluded from patentability under Article 53(b) EPC. The claimed processes aimed at producing triploid seedless watermelon fruits, not at breeding plants and did not involve sexually crossing the whole genomes of plants in the sense of decisions G 2/07 and G 1/08. Such a process was explicitly

mentioned in the Guidelines for Examination, G-II.5.4.2, as not being an essentially biological process for the production of plants.

*Exception to patentability - Plant varieties (Article 100(a) and Article 53(b) EPC first half-sentence, first alternative EPC)*

The appellants argued that the claimed plants were not a patentable invention under Rule 27 EPC. In particular, they submitted that the methods used to produce the claimed plants were not biotechnological inventions and were excluded from patentability under Article 53(b) EPC, as they lacked a technical step.

The opposition division had already considered these arguments (see section 14.1 of the decision under appeal) and correctly found that the claimed methods involved technical steps. In any case, the process used to produce the claimed triploid and tetraploid plants, did not contain or consist of the steps of sexually crossing the whole genomes of plants and of subsequently selecting plants in the sense of the Order of decisions G 2/07 and G 1/08. Instead, the claimed plants were produced by a method involving colchicine treatment of seedlings and selection (determination of ploidy) by flow cytometry. The triploid plants were then obtained by crossing tetraploid and diploid parents, both carrying the *bush* allele.

These steps resulted in a process with technical character and the claimed plants were not obtained by an essentially biological process. The *bush* allele was not introduced in the claimed plants by sexual crossing alone and so the process for their production did not involve only the mixing of whole genomes.

In any case, as mentioned in the decision under appeal, the principles expressed in decisions G 2/12 and G 2/13 applied to the present claims because the application on which the patent in suit had been granted was filed on 8 February 2013, thus Rule 28(2) EPC did not apply; see opinion G 3/19. This obviated the question of whether or not the plants were made by an essentially biological process or not. The Enlarged Board of Appeal, in decisions G 2/12 and G 2/13 had concluded that the exclusion of essentially biological processes for the production of plants in Article 53(b) EPC did not have a negative effect on the allowability of a product claim directed to plants or plant material such as a fruit or plant parts

The claimed plants were patentable under Rule 27 EPC, as they were produced by a technical process (Rule 27(a) and (c) EPC) and their technical feasibility was not confined to a particular plant variety (Rule 27(b) EPC). The *bush* allele could be introduced into various genetic backgrounds to produce different watermelon varieties.

The appellants' assertion that knowledge of a gene sequence was required for patentability under Rule 27(b) EPC was also not correct. In fact, the *bush* allele conferred a distinct, heritable phenotype (bush growth type) and seeds containing the allele had been deposited pursuant to Rule 31 EPC, enabling the invention to be carried out across different genetic backgrounds.

*Inventive step (Article 100(a) and Article 56 EPC)*

Document D13 was the closest prior art. It disclosed short-vined diploid polleniser plants but did not disclose the gene(s) responsible for that trait. The advantage of these polleniser lines was stated in D13 as "*easier harvest and reduced occurrence of undesirable diploid fruit, which must be kept separate from the seed-less triploid watermelon*". The plants of claim 1 differed from those in D13 in that they were triploid, comprising three copies of a recessive bush allele, which conferred a bush growth habit without affecting leaf or fruit size.

The objective technical problem was increasing the yield of triploid seedless fruits. The solution, involving the growing of bushier plants, having the bush allele, that nevertheless had normal sized fruit was non-obvious, because the known short-vine genes were associated with negative effects on yield and plant characteristics. The skilled person would not have known how to introduce such traits into triploid plants.

The claimed triploid and tetraploid plants therefore involved an inventive step. The method claims (claims 17 to 19) involved an inventive step for the same reasons.

*Disclosure of the invention (Article 100(b) EPC)*

The invention was disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person. The bush allele conferred a clear and identifiable phenotype, and seed deposits were available to enable the invention across its full scope.

*The parties requests*

XII. The appellants requested that the decision under appeal be set aside and the patent be revoked in its entirety.

If this request is not allowable, the following questions should be referred to the Enlarged Board of Appeal:

The questions as submitted in German are reproduced here:

"*(1) Kommt es bei der Auslegung der Verbote nach Art. 53b) auf die Regel 27 an und wie sind, vor dem historischen Hintergrund der Entstehung der Regel 27, die Anforderung an eine technische Erfindung zu verstehen?*

*(2) Kommt es bei der Auslegung der Verbote nach Art. 53b) auf die Regel 27b) an und wie sind, vor dem historischen Hintergrund der Entstehung der Regel 27, die Anforderungen an die Ausführung der Erfindung im Hinblick auf die Übertragbarkeit von patentierten Merkmalen zu verstehen?*

*(3) Kommt es bei der Auslegung der Verbote nach Art. 53b) auf die maßgeblichen Unterschiede zwischen herkömmlichen Züchtungsverfahren und gentechnischen Verfahren an und wie sind diese Unterschiede zu verstehen?*".

The board has freely translated these questions into English as follows:

(1) Is Rule 27 [EPC] relevant to the interpretation of the exceptions to patentability under Article 53(b) [EPC], and how should the requirements for a technical invention be understood in light of the historical background to the creation of Rule 27 [EPC]?

(2) Is Rule 27(b) [EPC] relevant to the interpretation of exceptions to patentability under Article 53(b), and how are the requirements for carrying out the invention to be understood with regard to the transferability of patented features, given the historical background to the creation of Rule 27 [EPC]?

(3) Are the differences between conventional breeding methods and genetic engineering methods relevant to the interpretation of the exceptions to patentability under Article 53(b), and how are these differences to be understood?

XIII. The respondent requested that the appeal be dismissed.

## Reasons for the Decision

*Introduction*

1. The patent relates to seedless watermelons and their production. According to the description, seedless watermelons (*Citrullus lanatus*) are produced on triploid, self-infertile, F1 hybrid plants. These triploid hybrids need to be pollinated by a diploid polleniser to produce watermelon fruit (see paragraph [0002] of the patent). To this end, triploid plants are interplanted with polleniser plants for fruit production. The "seedless" fruit produced after pollination on the triploid hybrid plant are not truly

seedless, but often contain some undeveloped, small, pale seeds, which are edible (see paragraph [0003] of the patent).

1.1 Triploid, F1 hybrid plants are generated using pollen from diploid male parent plants to fertilise flowers of tetraploid maternal parent plants.

1.2 The invention claimed in the patent relates to both triploid and tetraploid watermelon plants with a *bush* growth habit (claim 1 and and claim 11, respectively). A watermelon plant with a *bush* growth habit is defined in the patent as one with short longest vines and short internode length, meaning that this plant can be grown at a higher density in the field compared to traditional non-bush triploid watermelon hybrids, leading to a higher fruit yield per hectare compared to triploid hybrids with normal growth habit (see paragraph [0001] of the patent).

*The patent as granted*

2. The claims of the patent as granted fall into two categories, with claims 1 to 16 being for products and claims 17 to 19 being for processes.

*Claim 1 - claim construction*

3. Claim 1 defines a plant of the species *Citrullus lanatus*, with the following features:

i) it is triploid and

ii) it has a *bush* growth habit,

iii) it comprises three copies of a recessive allele designated *bush*, wherein said *bush* allele is obtainable by crossing a watermelon plant of which seeds were deposited under accession number NCIMB41906 or NCIMB41905 with another watermelon plant.

4. The *bush* growth habit phenotype is not defined in the claim. According to the description (paragraph [0036]) "*'Bush type' or 'bush growth type' or 'bush growth habit' or 'bush habit' refers to the heritable (genetically determined by the bush allele) vegetative growth habit of a plant line or variety at maturity having an average internode length of about 7 cm or less (but at least about 4.7 cm, preferably at least about 5.0 cm) and an average longest vine length of about 150 cm or less, about 140 cm or less, about 130 cm or less, preferably about 100 cm or less (but at least about 70 cm). Also the average leaf size is not reduced by the bush allele and is at least about 11 cm length and/or 15 cm width or larger.*" It is therefore understood that the claimed plants exhibit a phenotype in line with the above definition and that this phenotype is the result of the presence of genetic information contained in a structurally uncharacterised recessive allele.

5. The feature "comprising three copies of a recessive allele designated *bush*" is understood to mean that the *bush* allele is present in homozygous form in all three genomes of the triploid plant. This is because the gene/allele is recessive and the phenotype will only be expressed when the gene/allele is homozygous.

6. The claim also contains the feature "wherein said *bush* allele is obtainable by crossing a watermelon plant of which seeds were deposited under accession number

NCIMB41906 or NCIMB41905 with another watermelon plant". However, neither the patent nor the claim contains any structural information about the *bush* allele in terms of, e.g. its sequence or genetic markers for its identification. In fact, the genetic information contained in the deposited seeds is not disclosed in the patent. This feature therefore adds no further technical limitation to the claimed subject-matter. It is observed that if the claim were subject to examination under Article 84 EPC, it might lack clarity (cf. T 967/10, Reasons 1 to 11). However, the case concerns a granted patent and clarity is not a ground for opposition under Article 100 EPC.

*Claim 11 - claim construction*

7. The subject-matter of claim 11 is a tetraploid plant, as opposed to a triploid plant, i.e. it has four genomes, each homozygous for the *bush* allele. Otherwise claim 11 is construed in the same way as claim 1.

*Exceptions to patentability (Article 100(a) EPC and Article 53(b) EPC)*

8. Article 53 EPC defines three categories of subject-matter that, while considered as inventions under Article 52(2) EPC, are nevertheless excepted from patentability ("exceptions"). Under Article 53(b) EPC, plant and animal varieties and essentially biological processes for the production of plants or animals are excepted from patentability. Both of these exceptions are relevant to the present decision and they are further clarified in the Implementing Regulations to the EPC. They have also been the subject of a number of decisions or opinions of the Enlarged Board of Appeal, as explained below.

*Plant varieties (Article 100(a) EPC and Article 53(b), first half-sentence, first alternative, EPC)*

9. The appellants object that the claimed plants are excepted from patentability under Article 53(b) EPC and state that they do not primarily rely on opinion G 3/19 (and by extension Rule 28(2) EPC) for their objection. As the board understands it, they are of the view that Rule 27 EPC provides a closed list of patentable "*Biotechnological inventions*" and that the claimed plants being 'conventional' plants, do not fall under one of the categories set out in this list. In their view, all other inventions relating to plants are not biotechnological inventions within the meaning of Rule 27 EPC and therefore excepted from patentability under the exception to plant varieties. In other words, the appellants' line of argument is that the confirmation in Rule 27(b) EPC that "*Biotechnological inventions shall also be patentable if they concern: ...(b) without prejudice to Rule 28, paragraph 2, plants or animals if the technical feasibility of the invention is not confined to a particular plant or animal variety;*", should be understood as limiting the patentability of plants to those that represent a "biotechnological invention", i.e. genetically modified/transgenic plants. A similar interpretation of this exception is set out in document D20, referred to by the appellants.

10. This reading of Rule 27 EPC is however not correct. As can be taken from the use of the word "also", Rule 27 EPC provides an open ended list of types of patentable biotechnological inventions, i.e. those that are expressly not excepted from patentability. This is

seen in contrast to those biotechnological inventions defined in the open ended list given in Rule 28 EPC, which are expressly excepted from patentability. However, the fact that Rule 27(b) EPC confirms that biotechnological inventions relating to plants are patentable, cannot be understood as implying that inventions relating to plants that are not biotechnological inventions are not patentable.

11. Instead, the exception to patentability of plant varieties set out in Article 53(b), first half-sentence, EPC, is interpreted according to decision G 1/98 (OJ EPO 2000, 111). According to this decision "[*i*]*n the absence of the identification of specific varieties in the product claims, the subject-matter of the claimed invention is neither limited nor even directed to a variety or varieties*" (see G 1/98, Reasons 3.1). The exception to patentability in Article 53(b), first half-sentence, EPC applies if the claimed invention expressly or implicitly defines a single variety or a multiplicity of varieties which necessarily consists of several individual varieties (see Reasons 3.1 and 3.10). However, "*a patent [...] can be granted if varieties may fall within the scope of its claims*" (*ibid*).

12. Thus, under Article 53(b) EPC as interpreted by decision G 1/98, plants other than plant varieties are not excepted from patentability, regardless of whether or not they are considered to represent a "biotechnological" invention, that is to say, regardless of whether the plant is a conventional plant or results from genetic engineering.

13. This finding of the Enlarged Board of Appeal in decision G 1/98 stems from its considerations on the

purpose of the exception to patentability of plant varieties in Article 53(b), first half-sentence, EPC. In this respect, the Enlarged Board of Appeal observed that "*...the purpose of Article 53(b) EPC corresponds to the purpose of Article 2(b) SPC: European patents should not be granted for subject-matter for which the grant of patents was excluded under the ban on dual protection in the UPOV Convention 1961....*" (G 1/98, Reasons 3.6). In point 3.7 of the Reasons, it further explained that "*inventions ineligible for protection under the plant breeders' rights system were intended to be patentable under the EPC provided they fulfilled the other requirements of patentability*".

14. In view of the above considerations it is apparent that neither the provisions in Rule 27 EPC nor the provisions in Article 53(b), first half-sentence, first alternative, EPC as interpreted by the Enlarged Board of Appeal in decision G 1/98, allow the conclusion that plants are only patentable if they represent a biotechnological invention.

15. In their submissions relating to the exception to patentability of plant varieties, the appellants also referred to decisions G 2/07 (OJ EPO 2012, 130) and G 1/08 (OJ EPO 2012, 206), to support the submission that "technical inventions" that "escape the ban on patenting" under Directive 98/44/EC should be based on genetic engineering or targeted modification of breeding traits, in which there was a clear characterisation of the relevant genetic information.

16. However, decisions G 2/07 and G 1/08 are not relevant to the exception from patentability of plant varieties as they are concerned with the exception to patentability of essentially biological processes for

the production of plants or animals in Article 53(b) EPC.

17. The appellants also submitted that no interpretation of the exception to patentability of plant varieties under Article 53(b) EPC should be adopted that undermines the plant breeders' rights system under UPOV, in particular the plant breeders' privilege.

18. However, neither the EPC nor Directive 98/44/EC mentions a plant breeders' privilege, such as that set out in Article 15(1)(iii) of the UPOV convention, 1991. Instead, as noted in decision G 1/98, reasons 3.9, Directive 98/44/EC "*takes account of the interests of the breeder who cannot acquire or exploit a plant variety right without infringing a patent. Under the conditions of paragraph 3 of the provision, the breeder is entitled to a compulsory licence subject to payment of an appropriate royalty. The possibilities of the patentee to use the patent as a means of restricting access to important breeding material are thereby substantially restricted*". Thus, in the legal framework of the EPC, there is no possibility to take a plant breeders' privilege into account.

*The technical feasibility of the claimed invention is not confined to a particular plant variety*

19. The appellants' submissions could be understood as alleging that the technical feasibility of the invention is confined to a particular plant variety contrary to Article 53(b), first half-sentence, EPC in combination with Rule 27(b) EPC. They argue that because the gene sequence responsible for the *bush* trait is not identified in the patent, the claimed genetic trait can only be transferred from one variety

(the deposited seed material) to another variety through breeding (crossing and selection), but not by technical methods. This line of argument is supplemented by the submission that the claimed plants are by nature homozygous plant lines and as such they automatically meet the criteria defining a plant variety under Rule 26(4) EPC.

20. According to the patent, the *bush* phenotype is due to the recessive "*bush gene*" (see paragraph [0001]) which is present in a recessive allele. The plants of claim 1 are triploid and have three copies of the recessive allele (see paragraph [0058]). A phenotype or trait caused by the presence in a plant's genome of a single gene or allele can, from a biological point of view, be regarded as behaving in the same way as one caused by the presence of a single transgene in a transgenic plant, such as "*a plant defined by single recombinant DNA sequence*" considered in decision G 1/98 (see Reasons 3.1). Such a transgene or allele can be introduced into plants of any genetic background, albeit that in the present case, this introduction must be done by sexual crossing. No evidence or technical argument has been offered to show that the *bush* trait is in any way restricted by the watermelon's genetic background.

21. It has further been alleged by the appellants that the claimed trait can only be obtained in specific plant varieties. However, they offered no evidence to support this allegation and no technical argument was put forward that would support this view either. In summary, the board has seen no submission with would lead it to doubt that the *bush* trait may be introduced into watermelon plants with any genetic background,

regardless of whether or not they are part of a plant variety under Rule 26(4) EPC.

22. The objection that the claimed plants meet the definition of plant variety provided in Rule 26(4) EPC because they are necessarily homozygous is not persuasive either. It is correct that the bush allele must be present in homozygous form (see also paragraph [0046] of the patent), however, there is no requirement in the claim that any other part of the genome needs to be homozygous. Moreover, the appellants have not provided any convincing technical reason why this must be the case, nor has any evidence to this effect been submitted. In the absence of either convincing technical argument or evidence that the claimed plants automatically/inherently meet the definition of plant variety set out in Rule 26(4) EPC, the appellants' argument cannot succeed.

23. The above considerations apply equally and for the same reasons to the subject-matter of all claims directed to plants or material capable of regenerating a plant (i.e. that of independent claims 10, 12, 14 and 15 and dependent claims), as well as to the tetraploid plants of claim 11.

*Essentially biological processes for the production of plants (Article 100(a) and Article 53(b), first half-sentence, second alternative, EPC) and Rule 26(5) EPC*

*Claims 1 to 16*

*The extension of the exception to patentability of essentially biological processes for the production of plants to products exclusively obtained by means of such a process.*

*Opinion G 3/19 (OJ EPO 2020, 119) and Rule 28(2) EPC*

24. It is common ground between the parties that a plant containing the *bush* allele as claimed will generally have to be produced by means of sexual crossing starting from a plant containing the relevant allele, e.g. one grown from a seed deposited under accession number NCIMB41906 or NCIMB41905 (see paragraph [0051] of the patent). The appellants' objections may include one to the effect that, in view of the above fact, the claimed subject-matter is excepted from patentability under Article 53(b) EPC because it is exclusively obtained by means of an essentially biological processes for the production of plants.

25. The application on which the patent in suit was granted was filed in the transitional period established in opinion G 3/19. In its opinion G 3/19, the Enlarged Board of Appeal abandoned the interpretation of Article 53(b) EPC given in its earlier decisions G 2/12 (OJ EPO 2016, A27) and G 2/13 (OJ EPO 2016, A28) and, in the light of Rule 28(2) EPC (as amended by decision of the Administrative Council CA/D 6/17 of 29 June 2017 (OJ EPO 2017, A56), which entered into force on 1 July 2017), held that the term "*essentially biological processes for the production of plants or animals*" in Article 53(b) EPC was to be understood and applied as extending to products exclusively obtained by means of an essentially biological process or if the claimed process feature defines an essentially biological process (see G 3/19, Reasons, XXVI.8).

25.1 However, in order to ensure legal certainty and to protect the legitimate interests of patent proprietors and applicants, the Enlarged Board of Appeal further decided that "*the new interpretation of*

*Article 53(b) EPC given in this opinion has no retroactive effect on European patents containing such claims which were granted before 1 July 2017, when Rule 28(2) EPC entered into force, or on pending European patent applications seeking protection for such claims which were filed before that date*" (see G 3/19, Reasons, XXIX).

25.2 Since the application on which the patent in suit was granted had been filed before 1 July 2017 (see section II. above), the subject-matter of claims 1 to 16 is assessed for compliance with Article 53(b) EPC as interpreted by the decisions G 2/12 and G 2/13.

25.3 The first points of the Order in decisions G 2/12 and G 2/13 were:

"*1. The exclusion of essentially biological processes for the production of plants in Article 53(b) EPC does not have a negative effect on the allowability of a product claim directed to plants or plant material such as a fruit.*

*2. In particular, the fact that the only method available at the filing date for generating the claimed subject-matter is an essentially biological process for the production of plants disclosed in the patent application does not render a claim directed to plants or plant material other than a plant variety unallowable*".

26. In view of the findings in decisions G 2/12 and G 2/13, the subject-matter of claims 1 to 16, i.e. plants and plant material, is not excepted from patentability under the exception to patentability of essentially biological processes for the production of plants

(Article 53(b), first half-sentence, second alternative, EPC) and Rule 26(5) EPC) although it arguably represents the product of an essentially biological process for the production of plants.

27. It is worth noting that, under the legal framework currently in force (i.e. the framework applicable to European applications filed after 1 July 2017), in particular under Article 53(b) EPC as implemented by Rule 28(2) EPC, the watermelon plants and the plant material capable of regenerating into plants, covered by claims 1 to 16, would likely be excluded from patentability because they arguably represent products exclusively obtained by means of an essentially biological process.

*Claims 17 to 19*

28. The appellants also objected that the claimed invention was also excepted from patentability under Article 53(b) EPC because it related to essentially biological processes for the production of plants. In their submissions, the appellants state that they consider that the technical step of inducing triploidy as not sufficient to render the whole process claimed technical. They further refer to decisions G 2/07 and G 1/08. According to these decisions, a process for the production of plants which contains or consists of the steps of sexually crossing the whole genomes of plants and of subsequently selecting plants, is (only) not excluded from patentability if within the steps of sexually crossing and selecting, an additional step of a technical nature is present, which step by itself introduces a trait into the genome, or modifies a trait in the genome of the plant produced, so that the introduction or modification of that trait is not the

result of the mixing of the genes of the plants chosen for sexual crossing.

29. Only claims 17 to 19 are directed to a process, which leads the board to consider that the appellants' objection is directed against the subject-matter of these claims. Their subject-matter is a method for the production of seedless watermelon fruit which, in contrast to a plant breeding process, does not contain or consist of the steps of sexually crossing the whole genomes of plants and of subsequently selecting plants. Instead, in the claimed method, triploid hybrid watermelon plants are interplanted with diploid polleniser plants. The pollination of triploid watermelon plants by pollen of a particular diploid pollen-donor watermelon plant triggers the development of triploid seedless watermelon fruit on the triploid watermelon plants but does not involve the creation of any plant, let alone one with a different genetic make-up produced as the result of meiosis. Thus the claimed methods do not concern sexually crossing two whole genomes of plants (implying meiosis and fertilisation) and the subsequent selection of plants, which latter process would be excepted from patentability under Article 53(b), first half-sentence, second alternative, EPC. This finding is in line with the finding in T 1729/06, which in point 17 of the reasons also dealt with the question of whether a method for the production of seedless watermelon plants by pollination of triploid plants is excluded from patentability under Article 53(b) first half-sentence, second alternative, EPC in the light of decisions G 2/07 and G 1/08.

30. It is conceivable that the appellants' objection was also directed against product claims 1 to 16, because

in their view, the claimed plants resulted from a process of plant breeding. This objection is dealt with in points 25. to 25.2 above.

*Patentable inventions (Article 100(a) and Article 52(2) EPC)*

31. Under the heading inventive step, the appellants submit that the claimed watermelon plants having a bush growth habit constitute a discovery rather than an invention. The board understands this as an objection under Article 100(a) and Article 52(2)(a) EPC to the effect that the claimed subject-matter is not a patentable invention but a discovery.

32. According to the case law of the Boards, a substance which occurs in nature can be considered an invention when it is shown to give rise to a technical effect. This principle is reflected Rule 27(a) EPC according to which biotechnological inventions are patentable if they concern biological material which is isolated from its natural environment or produced by means of a technical process even if it previously occurred in nature. For example, where a microorganism that exists in nature is found to produce an antibiotic, the microorganism itself may also be patentable as one aspect of the invention. Similarly, a gene which is discovered to exist in nature may be patentable if a technical effect is revealed, e.g. its use in making a certain polypeptide or in gene therapy (see also Case Law of the Boards of Appeal of the European Patent Office, 10th edition 2022, I.A.6.3.1).

33. In the present case, the board considers that the plants (and plant tissues) of claims 1 to 16 do not constitute a discovery. Firstly, the claimed plants do not exist in nature. While the "*home-garden diploid*

*watermelon [with] an interesting growth type*" mentioned in paragraph [0119] of the patent, could be argued to be a discovery, it is not part of the claimed subject-matter. Instead, the mutated allele present in said plant has been transferred to other plants (i.e. those producing seedless fruit) and these have been shown to produce a technical effect: as set out in paragraph [0001] of the patent "*this plant can be grown at a higher density in the field compared to traditional non-bush triploid watermelon hybrids, leading to a higher fruit yield per hectare compared to triploid hybrids with normal growth habit (having an average longest vine length of above 200 or above 300 cm)*".

*Inventive step (Article 100(a) and Article 56 EPC) - claim 1*

34. The appellants could also be understood to further allege a lack of inventive step because the combination of a discovery (bushy melon) with a known technical method for developing polyploidy did not have any unexpected effect or solve a technical problem.

35. The board is not persuaded by this argument either. The appellants have not cited any document or other prior art which they consider as representing the closest prior art. The respondent suggests the short-vined diploid polleniser plant disclosed in D13, whereas in the decision under appeal, triploid watermelon plant used for the production of seedless watermelon fruits as disclosed in D4 was taken as the closest prior art. The board notes that the respondent had already suggested D13 as the starting point for assessing inventive step in the proceedings before the opposition division, as was mentioned in the opposition division's communication annexed to its summons to oral proceedings (see point 8.2) and it was discussed at the

oral proceedings before the opposition division (see minutes, point 16).

36. The board considers that D13 can be taken to represent the closest prior art for the claimed subject-matter. It discloses the production of seedless watermelon fruit using any conventional triploid watermelon plant, and also discloses the use of diploid plants having short vine length as a diploid polleniser (see paragraph [0020]), which latter plants take up less space in the field and reduce the total usage of water and fertiliser by diploid plants in a field (see paragraph [0041]), allowing a significant increase in total triploid fruit yield per acre (see paragraph [0043]).

37. The difference between the claimed bushy plants and those disclosed in D13 is that the claimed plants are the triploid, fruit bearing plants whereas those disclosed in D13 are the diploid polleniser plants and that the claimed plants exhibit normal leaf and fruit size. The technical effect of this difference is that, due to bush growth type which exhibits normal leaf and fruit size, more triploid plants can be grown per hectare, with an increased yield of triploid seedless fruits per hectare, compared to using conventional polleniser plants. The patent does not give a comparison of the yield per unit area of the claimed plants (bush type triploid plants) with that achieved using short vine length polleniser plants as disclosed in D13. Thus, a technical effect of improved yield compared to D13 cannot be taken into account.

38. In the decision under appeal, the opposition division considered that the objective technical problem starting from the conventional triploid watermelon

plants disclosed in document D4 was "*the provision of an alternative triploid watermelon plant to be used in the method of producing seedless watermelon fruits*". Since the triploid watermelon plants used in D13 are the same conventional triploid watermelon plants, the objective technical problem remains the same as that formulated in the decision under appeal.

39. The question to be answered in assessing obviousness is therefore whether the skilled person, faced with the objective technical problem above and starting from the the disclosure in D13, would have arrived at the claimed solution.

40. The skilled person knew from D13 and from their common general knowledge about the conventional method for producing seedless watermelon fruit on triploid fruit bearing plants, pollinated by diploid polleniser plants. They also knew of fruiting watermelon varieties with "*Short or medium length vines [---] well suited to with small or medium sized fruit. For example, 'Sugar Baby', 'New Hampshire Midget', and 'Petite Sweet' are short vined, having vine lengths of between about six to about 12 feet and 'Crimson Sweet' has intermediate vine length*" (D13, paragraph [0012]). Moreover, they knew of diploid short vine pollinator plants, which were subject of the patent application represented by D13.

41. None of these disclosures suggested the possibility that a short-vined watermelon could be obtained that retains normal leaf and fruit size. As noted above, while various dwarf and short-vine length plants were known, these were not ideal as the fruit bearing plant because they were associated with low yield and small fruits (see documents D15 and D17 to D19). Watermelon

plants with the bush growth habit as claimed were unknown in the prior art and there was no pointer in any of the cited prior art to motivate the skilled person (e.g. a trained plant breeder) to aim at their production using conventional breeding methods (including mutagenesis), either.

42. The board must therefore conclude that it was not obvious for the skilled person seeking a solution to the objective technical problem to provide the presently claimed watermelon plants. This conclusion on inventive step applies equally to all claims directed to plants and plant material from which plants can be regenerated (claims 2 to 16), since these either directly share the properties of the plants defined in claim 1 or in the case of the tetraploid plants of claim 11, are needed to maintain and generate the relevant triploid seedless fruit bearing plants. It also applies to the methods of claims 17 to 19 because these methods employ the inventive, seedless triploid plants of claims 1 to 10 to produce triploid seedless fruits per hectare.

*Disclosure of the invention (Article 100(b) EPC)*

43. The appellants argue that the absence of a structural characterisation of the genotype of the claimed plants means that the skilled person cannot carry out the invention as claimed. In their view the skilled person would face an undue burden due to the need to carry out extensive testing with unpredictable results.

44. The claimed watermelon plants are characterised by the fact that they express a bush growth phenotype, which according to the patent is due to the presence in

homozygous form of a single allele. The patent states that this was confirmed experimentally, see paragraph [0119]. The patent does not provide a structural characterisation of the allele or gene responsible, meaning that the patent does not disclose a molecular biological way of testing for the allele's presence. However, the evidence available to the board is that the allele's presence in homozygous form can be monitored by observing the phenotype of plants containing it. The skilled person seeking to carry out the invention does not have to rely on chance to do so because the respondent has deposited seeds containing the relevant genetics according to Rule 13*bis* PCT or Rule 31 EPC, respectively. The appellants have alleged that the skilled person was 'left with the option of breeding varieties whose properties are described in the patent but are not made technically accessible under patent law' (translation of the submission in the paragraph bridging pages 4 and 5 of the notice of appeal). The board is not persuaded by this because it is a mere allegation not supported by technical argument or evidence. The appellants' arguments also do not take into consideration that the invention can be carried out in the sense of Article 83 EPC through recourse to the seeds deposited according to Rule 31 EPC, or Rule 13*bis* PCT, as the case may be. Deposits of biological material under these provisions, by express intention of the legislature, serve to allow an invention which involves the use of or concerns such material, which is not otherwise available to the public and which cannot be described in the patent (application) in such a manner as to enable the invention to be carried out by a person skilled in the art, to meet the requirements of Article 83 EPC.

45. Thus, the board is satisfied that the patent discloses the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

*Referral of questions of law to the Enlarged Board of Appeal (Article 112(1) EPC)*

46. The appellants requested that three questions of law be referred to the Enlarged Board of Appeal (see point XII. above).

46.1 Under Article 112(1) EPC a Board of Appeal may, during proceedings on a case and either of its own motion or following a request from a party to the appeal, refer any question to the Enlarged Board of Appeal if it considers that a decision is required to ensure uniform application of the law, or if a point of law of fundamental importance arises.

46.2 The board rejected the appellants' request because no points of law have arisen that have not been answered in the already extensive case law of the Enlarged Board of Appeal and/or which cannot be answered by applying clearly worded legislation.

46.3 The appellants' questions relate to the provisions of Article 53(b) EPC. The first two questions also refer to Rule 27 EPC. Since the appellants have not clearly identified whether they are referring to the exception relating to plant varieties or to essentially biological processes for production of plants, the board assumes that the appellants rely on either or both alternatives, implying that the appellants wish the board to refer questions in relation to either or both of these. In any case, as explained above, the

appellants' reading of Rule 27 EPC is not correct, and no conflicting interpretations have arisen in the case law of the boards of appeal. Thus, the board saw no need for a referral to the Enlarged Board of Appeal in relation to questions 1 and 2, on how Rule 27 EPC affects the interpretation the Article 53(b) EPC.

46.4 The third question relates to differences between conventional breeding and genetic engineering for the purpose of applying the exclusions under Article 53(b) EPC. The board considers that either an incorrect understanding of Rule 27(b) EPC underlies this question and/or that it asks if Rule 28(2) EPC, as in force since 1 July 2017 should also apply to a patent granted before this date or to patents granted on applications which were then pending. The first matter is already dealt with above and the second has been clearly answered by the Enlarged Board of Appeal in its opinion G 3/19, as confirmed by decision T 420/19, see reasons 3 to 11. Decision T 420/19 in reasons 3 to 11, also addressed the view expressed in D20, that the Enlarged Board of Appeal in its opinion G 3/19, should not have set 1 July 2017 (the date when Rule 28(2) EPC came into force) as the date when the new interpretation of Article 53(b) EPC was to be applied because the legally binding effects of Directive 98/44/EC regarding the interpretation of Article 53(b) EPC that negatively affected the patentability of plants and plant material derived from essentially biological processes, were not tied to the date when Rule 28(2) EPC came into force.

47. In light of the above, the board did not allow the appellants' request for referral based on the proposed questions. Moreover, considering the consistent case law that has developed on the issues, it also saw no

need to refer any questions of its own motion. Accordingly, the board decided not to refer questions to the Enlarged Board of Appeal, and thereby rejected the appellants' request to this effect.

*Conclusions*

48. In view of the above considerations, none of the objections raised by the appellants are convincing.

49. None of the grounds for opposition relied upon by the appellants prejudice the maintenance of the patent as granted.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar: The Chairwoman:

A. Wille M. Pregetter

Decision electronically authenticated