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Datasheet for the decision of 14 December 2010

Case Number: T 1090/00 - 3.3.07

Application Number: 91904430.5

Publication Number: 0521871

IPC: A61K 7/32

Language of the proceedings: EN

Title of invention:
Alternative enzyme substrates as deodorants

Applicants:
The Gillette Company

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)

Relevant legal provisions (EPC 1973):
EPC Art. 84

Keyword:
"Clarity (no) (main and auxiliary request)"
"Amendments - not allowable (auxiliary request)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1090/00 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 14 December 2010

Appellants: The Gillette Company
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Representative: Wilding, Richard Alan
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 13 April 2000 refusing European application No. 91904430.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: S. Perryman
Members: F. Rousseau
B. ter Laan

Summary of Facts and Submissions

I. The appeal lies from the decision of the examining division posted on 13 April 2000 refusing European application No. 91904430.5, which was filed as international application published as WO 91/11988. It was based on five sets of claims forming the basis for the appellants' main and auxiliary requests 1 to 4.

II. Claim 1 of the main request read:

"1. A topical deodorant composition comprising, in a dermatologically acceptable vehicle, a compound which is competitively cleaved by an amino-acid-ß-lyase enzyme present in the axilla so as to reduce the conversion of malodor forming precursor, the compound having the formula $HOOC\text{-}CH(NH_2)\text{-}CH_2\text{-}X$ wherein X is OR and R is such that R-OH is produced by cleavage of the aforesaid compound, said produced R-OH having a neutral or pleasant odor".

Compared to claim 1 of the main request, claim 1 of the first auxiliary request specified that "R is selected from a branched or straight alkyl chain of one to ten carbon atoms that may be substituted with one or more hydroxyl, amino, carboxyl or phenyl groups; or an aromatic ring that is unsubstituted or substituted with one or more hydroxyl, amino, or carboxyl groups; or an aliphatic carbon chain of one to eight carbon atoms".

Compared to claim 1 of the main request, claim 1 of the second auxiliary request defined that the concentration

of the compound of formula HOOC-CH(NH_2)-CH_2-X wherein X is O-R is 0.01-200 millimolar.

Claim 1 of the third and fourth auxiliary requests contained both limitations included in claims 1 of the first and second auxiliary requests, *i.e.* the restrictions concerning the definition of R and the range of concentration for the compound of formula HOOC-CH(NH_2)-CH_2-X wherein X is O-R.

The claims of the fourth auxiliary request corresponded to the claims of the third auxiliary request with the exception that the methods defined in claims 6 and 7 were specified to be cosmetic methods.

III. According to the contested decision, claim 1 of the main and first auxiliary requests lacked novelty over the disclosure of D3: Database WPI, Week 7809, Derwent Publications Ltd, London, GB, AN 1966-33862F, which disclosed a solution of 150 g O-methylserine in 500 g water as starting material for the preparation of serine.

The examining division did not object to the novelty of claim 1 of the second auxiliary request as its subject-matter had been limited by defining the range of concentration of the compound of formula HOOC-CH(NH_2)-CH_2-X as to be 0.01-200 millimolar. Claim 1 of the second auxiliary request was however held to be unallowable under Article 84 EPC 1973 as the rest R was defined by two vague criteria, namely R should allow cleavage of the active agent by an amino-acid-ß-lyase enzyme present in the axilla and be such that ROH produced by the cleavage has a neutral or pleasant

odour. According to the examining division it was however possible for the applicants, as had been done in claim 1 of the third and fourth auxiliary requests, to define R by a list of specific substituents without unduly restricting the scope of the claims. The list of substituents defined in claim 1 of the third auxiliary request and claim 1 of the fourth auxiliary request was considered by the examining division to include practically the whole range of usable acid derivatives.

The third auxiliary request, however, was considered to be unallowable under Article 52(4) EPC 1973, as method claims 6 and 7 included methods of therapy.

According to the contested decision no objection was raised against the claims of the fourth auxiliary request. It was held in particular that the amendments contained therein overcame the objections under Articles 54, 84 or 52(4) EPC 1973 which had been raised against the main, first, second or third auxiliary requests. The claims of the fourth auxiliary request were also held to involve an inventive step, in particular in view of the fact that D3 was not at all related to the technical teaching of the present application.

IV. With the statement of grounds of appeal filed on 23 August 2000, the applicants requested that the claims of the application be replaced by enclosed claims 1 to 8 (main request) or as an alternative by a set of 7 claims, which auxiliary request corresponded, according to the appellants, to the fourth auxiliary request filed during the oral proceedings before the examination division.

V. The wording of claims 1, 2 and 4 of the present main request reads as follows:

"1. A topical deodorant composition comprising, in a dermatologically acceptable vehicle, a compound which is competitively cleaved by an amino-acid ß-lyase enzyme present in the axilla so as to reduce the conversion of malodor forming precursor, the compound having the formula $HOOC-CH(NH_2)-CH_2-X$ wherein X is OR and R is such that R-OH is produced by cleavage of the aforesaid compound, said produced R-OH having a neutral or pleasant odor, and wherein the concentration of the compound is 0.01-200 millimolar.

2. The deodorant composition of claim 1, wherein R is selected from a branched or straight alkyl chain of one to ten carbon atoms that may be substituted with one or more hydroxyl, amino, carboxyl or phenyl groups; or an aromatic ring that is unsubstituted or substituted with one or more hydroxyl, amino, or carboxyl groups; or an aliphatic carbon chain of one to eight carbon atoms.

4. The deodorant composition of claim 2, wherein the compound is O-phenethylserine, O-menthylserine, O-3-phenylpropylserine, or O-1-octenyl-3-serine."

The wording of the claims 1 and 3 of the present auxiliary request reads as follows:

"1. A topical deodorant composition comprising, in a dermatologically acceptable vehicle, a compound which is competitively cleaved by an amino-acid ß-lyase enzyme present in the axilla so as to reduce the conversion of malodor forming precursor, the compound having the formula $HOOC-CH(NH_2)-CH_2-X$ wherein X is OR and R is such that R-OH is produced by cleavage of the aforesaid compound, said produced R-OH having a neutral or pleasant odor, wherein R is selected from a branched or straight alkyl chain of one to ten carbon atoms that may be substituted with one or more hydroxyl, amino, carboxyl or phenyl groups; or an aromatic ring that is unsubstituted or substituted with one or more hydroxyl, amino, or carboxyl groups; or an aliphatic carbon chain of one to eight carbon atoms, and wherein the concentration of the compound is 0.01-200 millimolar.

3. The deodorant composition of claim 1, wherein the compound is O-phenethylserine, O-menthylserine, O-3-phenylpropylserine, or O-1-octenyl-3-serine."

VI. In the annex accompanying the summons to oral proceedings to be held on 14 December 2010, the Board indicated that claim 1 of the main request did not meet the requirements of Article 84 EPC 1973, because the definition of the compound having the formula $HOOC-CH(NH_2)-CH_2-X$ using functional terms was lacking clarity. Moreover, claim 4 of the main request defined O-menthylserine and O-1-octenyl-3-serine as substrates having a rest R according to the definition provided in claim 2. However, the rests octenyl and menthyl defined in claim 2 did not fall within the definition of R

given in claim 2, since they were neither alkyl nor aromatic groups. Thus, the subject-matter of claims 2 and 4 was not clear. The same held true for claims 1 and 3 of the auxiliary request, the subject-matter of which corresponded to that of claims 2 and 4 of the main request. Claim 1 of the auxiliary request was also objected to under the requirements of Article 123(2) EPC.

VII. As announced by letter dated 30 November 2010, the applicants did not attend the oral proceedings. That letter did not contain any argument or amended claims in response to the Board's objections set out in the annex to the summons. The proceedings were continued in their absence according to Rule 115(2) EPC.

VIII. The appellants argued in their written submissions essentially as follows:

The invention resided in the use of a compound of the general type HOOC-CH(NH_2)-CH_2-OR which competes with naturally occurring "malodour precursor" compounds. The invention thus lay in the concept of using compounds that would produce a neutral or pleasant odour when cleaved in place of the naturally occurring malodour precursor compounds. Citing T 694/92 (OJ 1998, 097), it was argued that a proper balance should be found between the technical contribution of the invention to the state of the art and the manner of claiming, so that the scope of protection granted was fair and adequate. The appellants, therefore, should not be limited to use only those compounds in which group R was defined by its structure but should be entitled to define group R by its function. The requirements for a

functional definition were fulfilled, since the invention could not be defined more precisely without unduly restricting the scope of the claims and the result could be verified by described or known procedures which did not require undue experimentation. It was explained that simple experiments would suffice and that deodorancy trials or tests were well known to those skilled in the art. In this context, the appellants, citing T 860/93, argued that an individual taste in assessing odours was not the issue, as the result was determined by a skilled person or a panel of such persons. In the appellants' view the description supported the functional definition by providing numerous examples of useful compounds as well as comparative evaluations.

IX. In their written submissions, the appellants requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the Main Request (claims 1 to 8) or of the Auxiliary Request (claims 1 to 7), which were all attached to the statement setting out the grounds of appeal.

X. At the end of the oral proceedings the Board's decision was pronounced.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. The present application relates to deodorants and a method of suppressing axillary malodour. According to the present application (page 2, line 23 to page 3, line 2) "*Extracts of bacteria are capable of converting the precursor to the malodor compound in an enzymatic process. The enzyme which is designated as the malodor-forming enzyme has been found to be a pyridoxal phosphate dependent amino acid lyase. The enzyme acts to cleave amino acids with the general structure HOOC-CH(NH_2)-CH_2-X where X is -S-R or O-R. The products of the reaction are pyruvate, ammonia, and XH. The apocrine precursor to axillary malodor is a sulfur containing amino acid. It has now been found that the production of axillary malodor is blocked if an alternative substrate for the malodor-forming enzyme is provided, so that the alternative substrate is cleaved instead of the apocrine precursor. The alternative substrates produce either a neutral odor or a pleasant odor upon cleavage.*"

3. Present claim 1 is therefore directed to a deodorant composition comprising a specific amount of a serine derivate of formula HOOC-CH(NH_2)-CH_2-X wherein X is O-R. This derivate is defined in claim 1 using functional terms, namely :

(a) R is such that HOOC-CH(NH_2)-CH_2-OR is competitively cleaved by an amino-acid-ß-lyase enzyme present in the axilla,

(b) R-OH is produced by cleavage of HOOC-CH(NH_2)-CH_2-OR and

(c) R-OH has a neutral or pleasant odour.

4. The relevant question is not only whether a definition of the alternative substrate in functional terms is permissible, but also whether the functional definition itself has a clear and unambiguous meaning.

4.1 The concept of "neutral or pleasant odour" used in claim 1 for defining the rest R has no clear meaning, because the concepts of neutral or pleasant odours are not based on qualitative and objective measurements, but on a subjective sensory perception. The argument that the relevant question should rather be whether those terms are clear to the skilled person fails to convince. The knowledge of the notional skilled person is defined as being normally represented by encyclopaedias, textbooks, dictionaries and handbooks on the subject in question, in the present case cosmetics, in particular deodorants. However, no evidence has been presented showing that the skilled person in this field would be able to discern unpleasant from neutral and pleasant odours or that two or more different persons would agree on what is "neutral or pleasant". As the perception of odours even by any particular skilled person in the field concerned is unpredictable, he cannot be relied on to assess whether an odour should be deemed to be "neutral or pleasant". Whether or not the tests are carried out by a trained individual or a group of trained individuals, as submitted by the appellants, is also irrelevant as the test results will vary from one individual or one group to the other.

4.2 Contrary to the appellants' opinion, any clarity requirement which would be imposed on the definition of the rest R for claiming the alternative substrate *per*

se, has also to be imposed on present claim 1, because the rest R is a characterizing feature of claim 1. Moreover, a mere reference to the description giving some examples of rests R that are meant to provide "neutral or pleasant odour" is also not sufficient, as the applicants cannot rely on Article 69 EPC as a replacement for the Article 84 EPC 1973 requirements, *i.e.* as a substitute for an amendment that would be necessary to remedy a lack of clarity.

4.3 Accordingly, the rest R cannot be regarded as defined in a manner enabling the skilled person to distinguish between chemical compositions claimed and those not claimed. Thus, the subject-matter of claim 1 lacks clarity within the meaning of Article 84 EPC 1973.

5. Claim 4 defines O-menthylserine and O-1-octenyl-3-serine as substrates having a rest R according to the definition provided in present claim 2. The rests octenyl and menthyl however do not fall within the definition of R given in claim 2, since they are neither alkyl nor aromatic groups. Thus, the subject-matter of claims 2 and 4 is also not clear, contrary to the requirements of Article 84 EPC 1973.

6. Consequently, the main request is not allowable.

Auxiliary request

Amendments (Article 123(2) EPC)

7. In claim 1, the semicolon before the expression "or an aliphatic carbon chain of one to eight carbon atoms" gives a different function to the "aliphatic carbon

chain of one to eight carbon atoms" which, however, is not disclosed in the application as originally filed. According to the application as originally filed, the "aliphatic carbon chain of one to eight carbon atoms" is not a possible rest R, but a substituent of the rest R when the rest R is an aromatic ring. Thus, claim 1 does not meet the requirements of Article 123(2) EPC.

Clarity (Article 84 EPC 1973)

8. The objection raised in above point 4 for claims 2 and 4 of the main request also applies to claims 1 and 3 of the auxiliary request. Claims 1 and 3 lack therefore clarity.

9. Consequently, the claims according to the first auxiliary request are also not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Fabiani S. Perryman