PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing See form PCT/ISA/210
(day/month/year)

FOR FURTHER ACTION See paragraph 2 below

Applicant’s or agent’s file reference
TE1836-12510JP CM

International application No.
PCT/FR2007/000927

International filing date (day/month/year) 05.06.2007

Priority date (day/month/year) 07.06.2006

International Patent Classification (IPC) or both national classification and IPC
A23L2/06 A23L2/72 A23L2/84 C12G3/00 C12G3/02

Applicant
TERRAS, Jean-Louis

1. This opinion contains indications relating to the following items:

☐ Box No. I  Basis of the opinion
☐ Box No. II  Priority
☐ Box No. III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐ Box No. IV  Lack of unity of invention
☒ Box No. V  Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐ Box No. VI  Certain documents cited
☐ Box No. VII  Certain defects in the international application
☐ Box No. VIII  Certain observations on the international application

2. FURTHER ACTION
If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1(h)(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

<table>
<thead>
<tr>
<th>Name and mailing address of the ISA/EP</th>
<th>Date of completion of this opinion</th>
<th>Authorized officer</th>
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Facsimile No. Telephone No.

Form PCT/ISA/237 (cover sheet) (April 2005)
1. With regard to the language, this opinion has been established on the basis of:
   - [ ] the international application in the language in which it was filed
   - [x] the translation of the international application into ______________________, which is the language of a translation furnished for the purposes of international search (Rule 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
   a. type of material
      - [ ] a sequence listing
      - [ ] table(s) related to the sequence listing
   b. format of material
      - [ ] on paper
      - [x] in electronic form
   c. time of filing/furnishing
      - [ ] contained in the international application as filed
      - [ ] filed together with the international application in electronic form
      - [ ] furnished subsequently to this Authority for the purposes of search

3. [ ] In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:
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<th>1. Statement</th>
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<td><strong>Novelty (N)</strong></td>
<td>Claims 1-15, 19</td>
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<td><strong>Inventive step (IS)</strong></td>
<td>Claims 1-15</td>
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<td><strong>Industrial applicability (IA)</strong></td>
<td>Claims 1-19</td>
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<table>
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<th>2. Citations and explanations:</th>
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<tr>
<td>1. Reference is made to the following documents:</td>
</tr>
</tbody>
</table>

- **D1:** GB-A-1 535 983 (NOVO INDUSTRI AS) 13 December 1978 (1978-12-13)
- **D3:** DATABASE WPI Week 198516 Derwent Publications Ltd., London, GB; AN 1985-095781 XP002417522 & JP 60 043376 A (TODA K) 7 March 1985 (1985-03-07)
- **D4:** HYOUNG S. LEE; CHIN S. CHEN: "Rates of Vitamin C Loss and Discoloration in Clear Orange Juice Concentrate During Storage at Temperatures of 4-24 Degrees C." JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, vol. 46, no. 11, 1998, pages 4723-4727, XP002417517 USA
2. Preliminary remark:
Claim 16 relates to a liquid composition of any sort comprising citrus fruit juice (including compositions consisting of such juice) which is characterized in that it:
- is visually non-turbid,
- comprises at least 40 mg of vitamin C per 100 g of composition.

It is noted that this claim is formulated such that it includes, along with such compositions with a natural vitamin C content, in addition any type of composition which has been enriched through the addition of vitamin C or of ascorbic acid. Furthermore, it includes any preparation directly after preparation thereof just as after a defined period of storage.

3. Novelty (PCT Article 33(2))
3.1 The present application fails to comply with the requirements of patentability since the subject matter of claims 16 to 18 is not novel over the following prior art documents:
The orange permeate disclosed in paragraph 65 of D6 comprising 43.4 mg/100 ml of ascorbic acid.
The clarified and debittered grapefruit permeates of example 21 of D7 (see table VI), comprising between approximately 43 and 50 mg of vitamin C per 100 ml of composition.
Although explicit percentages are not given in the
following documents, a clear delimitation of the citrus fruit juice-based liquid compositions disclosed in D1 and D5 is questionable in view of the specific conditions applied during the methods applied:
D1, clarification, filtration, decantation of lemon juice especially when prepared at a temperature close to 10°C (see citations noted in the search report, in particular claim 1). It is noted that the clarification is carried out continuously, and therefore implicitly sheltered from daylight/natural light (see claim 13 for example).

3.2 The subject matter of independent claim 1, and therefore also of dependent claims 2 to 15, appears to comply with the requirements of novelty. None of D1, D5 or D4 discloses a combination of the steps defined in claim 1, namely separation into three phases, of which the phase comprising the vitamin C is separated from the phase comprising the sediments and also from the oily upper phase; wherein these steps are carried out sheltered from natural light and at a temperature ranging between 4 and 10°C.

3.3 The subject matter of claim 19 appears to comply with the requirements of novelty since none of the documents addressed in point 3.1 above discloses fermentation of the liquid compositions in question.

4. Inventive step (PCT Article 33(3))

4.1 D1, which is considered to be the prior art closest
to the subject matter of claims 1 to 15, describes (see references noted in the search report) a method for clarifying lemon juice using pressing, filtration, decantation, clarification by means of a pectolytic enzyme, and filtration (see in particular example 11) is applied so as to obtain a clear lemon juice. The processing of the juice can be carried out at a temperature ranging between 10 and 50°C (see claim 1).

Consequently, the subject matter of claims 1 to 15 differs in particular due to the separation into three phases, i.e. the separation of the sediment (particles in suspension) and of the oily phase, and in that the method is carried out a temperature ranging between 4 and 10°C.

The problem addressed by the present invention can therefore be considered that of the preparation of a clear (non-turbid) citrus fruit juice with a high vitamin C content, the vitamin C percentage of which remains stable during storage thereof.

Although the preparation of citrus fruit juice at low temperatures of about 4°C is prompted by D4, in which it is clearly demonstrated that the vitamin C remains virtually stable during the storage of clear orange juice at a temperature of about 4°C (see in particular page 4724, right-hand column, first paragraph and table 1), the solution proposed in the present application, i.e. also separating, alongside the insoluble particles, the oily phase which,
according to the applicant, is one reason for the instability of the vitamin C during the storage of citrus fruit juices, does not appear to follow in an obvious manner from the prior art cited in the search report.

The subject matter of claims 1 to 15 therefore appears to involve an inventive step as required by PCT Article 33(3).

4.2 The subject matter of claim 19, which is dependent on claim 16 (see remark under point 2 above) fails to comply with the requirements of inventive step according to PCT Article 33(3) since the preparation of fermented compositions based on citrus fruit juice comprising vitamin C (using wine yeast) is already well known from D2 and D3.

5. The subject matter of claims 1 to 19 complies with the requirements of industrial applicability since it is applicable in the food industry (PCT Article 33(4)).