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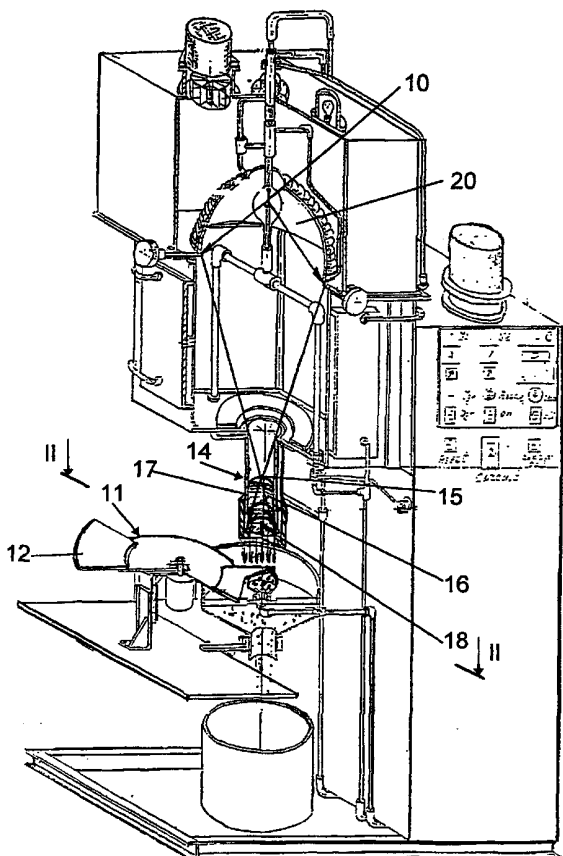
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- (74) Agents: LUZZATTO, Kfir et al.; Luzzatto & Luzzatto, P.O. Box 5352, 84152 Beer-Sheva (IL).
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[Continued on next page]

(54) Title: PROCESS AND APPARATUS FOR PROMOTING THE GERMINATION OF PLANT SEEDS AND THE PRODUCTION OF AGRICULTURAL CROPS



(57) Abstract: Method and apparatus for promoting by light irradiation the germination of seeds and the growth of plants generated by the seeds. The seeds to be treated are irradiated with radiation that is a simulation of the solar visible spectrum. The radiation may have a wavelength range from about 400 to about 700 nm. The irradiating light may be pulsed, for example at a frequency from about 10 to 150 pulses per minute, each pulse having a duration from 0.1 to 0.9, and the intervals between pulses having a duration about from 0.1 to 6.0 seconds. The seeds may be cooled while irradiating them, such as to maintain the seeds at temperatures not exceeding 35 °C. Cooling the seeds may be carried out by means of a stream of gas.



WO 00/54567 A3



MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/IL 00/00146

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A01C1/00 A01C1/02 A01G7/04 A01H3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A01C A01G A01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | EP 0 307 991 A (NIJSSEN LIGHT DIV) 22 March 1989 (1989-03-22) | 1,3 |
| Y | column 1, line 38 - line 41 --- | 2,5-8 |
| Y | GB 2 140 262 A (RHONE POULENC AGROCHIMIE) 28 November 1984 (1984-11-28) page 2, line 43 - line 45 --- | 2 |
| Y | GB 2 220 551 A (ROGERS ANDAM ADEL;ROGERS DAVID MARTIN) 17 January 1990 (1990-01-17) | 5-8 |
| A | page 8; claims 1,9 --- | 4,9 |
| A | GB 1 302 613 A (WARE) 10 January 1973 (1973-01-10) page 3, line 4 - line 25 --- | 5,10,12, 13,21-24 |
| | -/-- | |

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

20 September 2000

Date of mailing of the international search report

29.09.2000

Name and mailing address of the ISA

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Authorized officer

Fonts Cavestany, A

INTERNATIONAL SEARCH REPORT

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| International Application No PCT/IL 00/00146 |
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| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|--|---|-----------------------|
| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| A | US 5 012 609 A (IGNATIUS RONALD W ET AL) 7 May 1991 (1991-05-07) claims; figures --- | 1 |
| A | GB 2 276 525 A (LIQUID TURF LIMITED ;HOLLINS JEREMY JAMES (GB)) 5 October 1994 (1994-10-05) page 3, paragraph 2 - paragraph 3 page 4, paragraph 5 page 12, last paragraph page 13, paragraph 2 - paragraph 5 page 14, paragraph 4; figures 3-6 ---- | 11-14 |
| A | GB 1 379 116 A (NEWTON D) 2 January 1975 (1975-01-02) page 1, line 22 - line 59; figures --- | 11,21,25 |
| A | US 3 940 885 A (GRAY OSCAR SAM) 2 March 1976 (1976-03-02) column 2, line 14 - line 43; claims; figures ---- | 11 |
| A | FR 2 490 063 A (UNIV KAZAKHSKY) 19 March 1982 (1982-03-19) claims; figures; examples ----- | 11,21 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL 00/00146

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10,26 and 12-13,
21-24 as far as related to an apparatus for
carrying out the method of claim 10

Method for promoting the germination of seeds and the growth of plants by light irradiation, using a specific light radiation spectrum, and apparatus for carrying out such a method.

2. Claims: 11,14-20,25,27

Apparatus for promoting by light irradiation the germination of seeds and the growth of plants, with means for controlling the exposure of the seeds to the radiations of light

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 30,35,37,38,40,42 relate to the use of the compounds of formula I in the treatment of diseases which actually are not well defined. The use of the definitions "for inducing/can be treated by phosphorylation of intracellular proteins", "for promotion of cell differentiation", "for induction of hormone-like signaling", "for the treatment of disorders in which HGH is involved" and "for the treatment of disorders involving EGF" in the present context is considered to lead to a lack of clarity within the meaning of Article 6 PCT. The lack of clarity is such as to render a meaningful complete search impossible. Furthermore, the term "analogs" used in claim 39 is vague and unclear and leaves in doubt as to the meaning of the technical features (substances) to which it refers. Again the lack of clarity is such as to render a meaningful complete search impossible. Consequently, the search has been restricted to the compounds of the general formula I and to the diseases mentioned in claims 20-23,25,31-34,36,41 with due regard to the general idea underlying the present invention.

Claims searched completely: 1-29,31-34,36,41,43,44

Claims searched incompletely: 30,35,37-40,42

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

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International Application No

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