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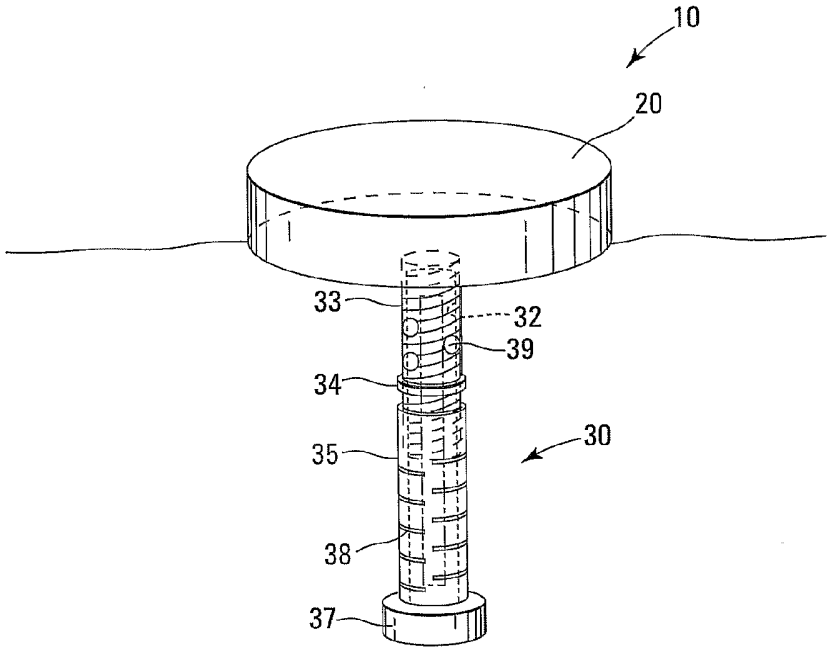
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[Continued on next page]

(54) Title: METHODS OF INHIBITING MICROORGANISM GROWTH USING MOSS AND DEVICES FOR WATER TREATMENT



(57) Abstract: The invention provides a method of inhibiting microorganism growth comprising contacting a substance susceptible to microorganism growth with an amount of a non-decomposed moss effective to inhibit microorganism growth, wherein the moss is selected from the group consisting of sphagnum papillosum, sphagnum cristatum, and mixtures therof. The invention provides a device (10) for use in water comprising a carrier having an interior cavity (32) and one or more openings (38, 35) allowing ingress to and egress from the interior cavity (32); and a moss contained within the interior cavity (32) in which the carrier completely encloses the moss.

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INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C02F1/50

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 A61L C02F A01N

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, PAJ, WPI Data, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 134 793 A (* VERNON-CARUS LIMITED; THE * INSTITUTE OF ORTHOPAEDICS) 22 August 1984 (1984-08-22) the whole document -----	1-16, 22-33, 39,41-73
X	MARTINS R J E ET AL: "Cadmium(II) and zinc(II) adsorption by the aquatic moss Fontinalis antipyretica: effect of temperature, pH and water hardness" WATER RESEARCH, PERGAMON PRESS, OXFORD, GB, vol. 38, no. 3, February 2004 (2004-02), pages 693-699, XP004483436 ISSN: 0043-1354 paragraph [02.1] -----	50

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[X] Further documents are listed in the continuation of box C.

[X] 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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 July 2005	07 10 2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Liebig, T

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2005/012915

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 4 618 496 A (BRASSEUR ET AL) 21 October 1986 (1986-10-21) the whole document	1-16, 22-33, 39,41-73
A	WO 97/07883 A (SPHAGNUM A/S; BOENES, OEYVIND) 6 March 1997 (1997-03-06) the whole document	1-16, 22-33, 39,41-73
A	PODTEROB A P ET AL: "A history of the medicinal use of plants of the genus Sphagnum" PHARMACEUTICAL CHEMISTRY JOURNAL, CONSULTANTS BUREAU, NAW YORK, NY, US, vol. 36, no. 4, 2002, pages 192-194, XP002983279 ISSN: 0091-150X the whole document	1-16, 22-33, 39,41-73

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/012915

Box II Observations where certain claims were found unsearchable (Continuation of item 2 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. [X] Claims Nos.: 17-21, 34-38,40
because they relate to subject matter not required to be searched by this Authority, namely:

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

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 III Observations where unity of invention is lacking (Continuation of item 3 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. [X] 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.:

1-16,22-33,39,41-73

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: 1-16,22-33,39,41-73

Method of inhibiting microorganism growth by contacting a substance susceptible to microorganism growth with an amount of a non-decomposed moss effective to inhibit microorganism growth, wherein the moss is selected from the group of sphagnum papillosum, sphagnum cristatum and mixtures thereof. The same method using a carrier, methods of preparing such moss and a kit comprising a sterilised moss and a carrier.

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2. claims: 74,75

Method of inhibiting bacterial growth by contacting water susceptible to microorganism growth with an amount of a non-decomposed moss effective to inhibit bacterial growth, wherein the moss is selected from the group of sphagnum papillosum, sphagnum cristatum and mixtures thereof and periodically shocking the water with an appropriate agent.

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3. claims: 76-95,160-186

Method of treating water by contacting water with an amount of a non-decomposed moss effective to remove cations other than hydrogen ions from the water, wherein the moss is selected from the group of sphagnum papillosum, sphagnum cristatum and mixtures thereof and such a method where the moss is placed in a carrier which is contacted with the water.

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4. claims: 96-159

Device for use in water comprising a carrier having an interior cavity and a moss contained within the interior cavity, wherein the carrier completely encloses the moss, methods of inhibiting microorganism growth using such device and kit including the device.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US2005/012915

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