**A rooting plug configuration**

The invention relates to a rooting plug configuration for cultivation of a plant. The rooting plug configuration comprises a first rooting plug and a second rooting plug. Each rooting plug is made from a substrate including organic and/or non-organic material forming a first and second plug body, respectively, that is preferably substantially cylindrically shaped. Each plug body has a top surface and a bottom surface. Further, at least a portion of the bottom surface or the top surface of the first plug body contacts at least a portion of the top surface or the bottom surface, respectively, of the second plug body.

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The illustrated diagram shows the arrangement and structure of the rooting plug configuration, with various labeled parts indicating the different sections and components of the rooting plugs and their interactions.
Title: A rooting plug configuration

The invention relates to a rooting plug configuration for cultivation of a plant.

Rooting plugs are generally known, e.g. from patent publication EP 2 572 571 for growing plants. For the purpose of stimulating growth of relatively small plants such as seedlings, fertilizer such as nutrient material can be provided in or on the rooting plug.

It appears in practice, however, that roots may be burned, e.g. due to exposure of an excess of potassium in nutrient material, thereby limiting growth of the plant or even causing its death. Especially young plants having delicate root structures may be harmful for exposure to an excess of nutrient material.

It is an object of the invention to obtain an improved rooting plug configuration wherein a risk of burning roots of a plant is reduced. Thereto, according to an aspect of the invention, a rooting plug configuration for cultivation of a plant is provided, comprising a first rooting plug and a second rooting plug, each rooting plug being made from a substrate including organic and/or non-organic material forming a first and second plug body, respectively, having a top surface and a bottom surface, wherein at least a portion of the bottom surface or the top surface of the first plug body contacts at least a portion of the top surface or the bottom surface, respectively, of the second plug body.

As an example, at least a portion of the bottom surface of the first plug body contacts the top surface of the second plug body.

By providing at least two rooting plugs such that at least a portion of the bottom surface or the top surface of the first plug body contacts the top surface or the bottom surface of the second plug body, e.g. by placing a first plug body on top of the second lug body, roots are only
exposed to nutrient material after growing to a substantial portion of plug material, i.e. after having grown to a degree of robustness. Further, the fertilizer can be distributed over a relatively large volume, i.e. over the volume of the second plug body, thereby reducing the concentration of the fertilizer significantly compared to a growing structure provided with fertilizer granules, thereby also reducing a risk that roots of a plant will be burned.

In an advantageous embodiment, the fertilizer is a type that slowly releases, thereby even further reducing a burning risk, while also reducing an amount of fertilizer that is discharged as a waste residue in the environment.

The invention also relates to a tray, and to a container such as a plant pot receiving a rooting plug configuration.

Advantageous embodiments according to the invention are described in the appended claims.

It should be noted that the technical features described above or below may each on its own be embodied in a rooting plug configuration, i.e. isolated from the context in which it is described, separate from other features, or in combination with only a number of the other features described in the context in which it is disclosed. Each of these features may further be combined with any other feature disclosed, in any combination.

By way of non-limiting example only, embodiments of the present inventions will now be described with reference to the accompanying figures in which:

Figure 1 shows a schematic cross-sectional side view of a rooting plug configuration according to a first embodiment of the invention;

Figure 2 shows a schematic cross-sectional side view of a rooting plug configuration according to a second embodiment of the invention;

Figure 3 shows a schematic cross-sectional side view of a rooting plug configuration according to a third embodiment of the invention;
Figure 4 shows a schematic cross-sectional side view of a rooting plug configuration according to a fourth embodiment of the invention, and Figure 5 shows a schematic perspective top view of a rooting plug configuration according to a fifth embodiment of the invention.

The embodiments disclosed herein are shown as examples only and should by no means be understood as limiting the scope of the claimed invention in any way. In this description and in the figures, the same or similar elements have the same or similar reference signs.

It is noted that in this description a plant has to be understood as a seedling, a young plant or a fully grown plant. As an example, the plant may be a bromeliad or other flowers or vegetables, or an orchid. It is further noted that the rooting plug configuration can be used for growing any plant material, including seeds as indicated below.

Figure 1 shows a schematic cross-sectional side view of a rooting plug configuration 1 according to a first embodiment of the invention. The rooting plug configuration 1 has a first rooting plug 11 and a second rooting plug 12 placed upon the first rooting plug 11.

The first rooting plug 11 and the second rooting plug 12 are made from a substrate including organic and/or non-organic material. Further, the rooting plugs 11, 12 are formed as a substantially cylindrically shaped first and second plug body 13, 14, respectively. Each of the plug bodies 13, 14 has a top surface 15, 16, a side surface 17, 18 and a bottom surface 19, 20. On the top surface 14 of the first plug body 13 a number of seeds 21a, b are placed to a grow as a plant 22 having roots 23, 24 and a stem 25.

In the embodiment shown in Fig. 1, the first plug body 13 is placed on top of the second plug body 14 such that the bottom surface 19 of the first plug body 13 contacts the top surface 16 of the second plug body 14. In the embodiment shown in Fig. 1, the bottom surface 19 of the first plug body 13 and the top surface 16 of the second plug body 14 are mainly flat.

Therefore, the geometry of the bottom surface 19 of the first plug 13 and the
geometry of the top surface 16 of the second plug body 14, i.e. the mutually contacting portions are in mutual conformity, in other words the contacting portions mutually match. Then, a volume filled with air between the first and second plug body 13, 14 is minimal, thereby enabling a multiple number of capillary channels in the first plug body 13 to run into corresponding capillary channels in the second plug body 14. Then, during use of the rooting plug configuration 1, a moisture level in the first plug body 13 substantially corresponds to a moisture level in the second plug body 14 thereby optimizing a chance that a root 23, 24 grows from the first plug body 13 into the second plug body 14.

Similarly, in the embodiment shown in Fig. 1, the bottom surfaces 19, 20 and the top surfaces 15, 16 of the plug bodies 13, 14 are mainly parallel to each other. However, the orientation of the top surface 15 of the first plug body 13 and the bottom surface 20 of the second plug body 14 may deviate from the orientation of the bottom surface 19 of the first plug body 13 and the top surface 16 of the second plug body 14. Further, the bottom surfaces 19, 20 and the top surfaces 15, 16 of the plug bodies 13, 14 may be non-flat, e.g. curved, corrugated or including a stepped profile, however such that the shape of the bottom surface 19 of the first plug 13 mainly matches with the geometry of the top surface 16 of the second plug body 14 so that the bottom surface 19 of the first plug 13 contacts the top surface 16 of the second plug body 14 along a substantial portion of said corresponding surfaces 19, 16, e.g. along at least circa 50%, preferably along at least circa 70%, more preferably along at least circa 90% of said surfaces 19, 16.

In Fig. 1, the rooting plug configuration 1 is received in a cell 80 of a tray 81. In practice, a multiple number of rooting plug configurations can be received in corresponding cells in an array of cells of a tray. Alternatively, the rooting plug configuration can be received in another structure such as a container of plant material such as a plant pot or without container.
The first plug body 13 does not contain fertilizer material. However, the second plug body 14 includes a fertilizer for providing fertilizer material 30 such as nutrients to roots 23, 24 penetrating into the second plug body 14. The fertilizer preferably is a slow release fertilizer, however, also other fertilizer types can be applied. Further, preferably, the slow release fertilizer is mainly uniformly distributed over the volume of the second plug body 14 to deliver fertilizer material to roots at different locations in the second plug body 14. Further, by distributing the slow release fertilizer material over the entire volume or at least a substantial portion of the second plug body, a chance that roots are exposed to burn risks is reduced. Alternatively, the slow release fertilizer material can be distributed over a multiple number of micro volumes in the second plug body.

In another embodiment, also the first plug body 13 contains slow release fertilizer material, however having a concentration that is lower than the concentration of the slow release fertilizer in the second plug body 14. It is noted, generally, that by providing a slow release fertilizer, only a minimum of fertilizer material

Figure 2 shows a schematic cross-sectional side view of a rooting plug configuration 1 according to a second embodiment the invention. Here, the bottom surface 19 of the first plug 13 and the top surface 16 of the second plug body 14 have a curved geometry that matches with each other. The top surface 16 of the second plug body 14 is mainly dome-shaped with similar dimensions as the corresponding concave bottom surface 19 of the first plug 13. Again, the bottom surface 19 of the first plug 13 and the top surface 16 of the second plug body 14 contact each other, now along a relatively large contact area due to the curved profile of the surfaces 19, 16. Apparently, also other upwardly extending profiles can be applied in the top surface 16 of the second plug body 14 such as a pyramid shaped profile.
It is noted that, in further embodiments, only a portion of the bottom surface 19 of the first plug body 13 contacts the top surface 16 of the second plug body 14 such that the bottom surface 19 of the first plug body 13 extends beyond an area where the bottom surface 19 of the first plug body 13 contacts the top surface 16 of the second plug body 14.

Figure 3 shows a schematic cross-sectional side view of a rooting plug configuration 1 according to a third embodiment the invention, wherein the bottom surface 19 of the first plug body 13 extends beyond the above mentioned contact area of the first and second plug bodies 13, 14. Here, the bottom surface 19 of the first plug body 13 defines a cavity 31 receiving the second plug body 14. Then, at least a portion of the bottom surface 19 of the first plug body 13 may have the same or similar level as the bottom surface 20 of the second plug body 14.

In principle, the second plug body 14 may have another, non-block shape, such as a body geometry having a dome-shaped or pyramid-shaped profile in the top surface. Further, in principle, the rooting plug configuration 1 may include a multiple number of second rooting plugs, e.g. received in multiple cavities provided in the first plug body 13. Generally, the plug bodies are mainly cylindrically shaped having a top surface, a side surface and a bottom surface. However, at least one plug body may have another geometry, e.g. a pyramid-shaped geometry or a dome-shaped geometry.

It is noted that the rooting plugs 11, 12 are preferably made from a substrate including organic and/or non-organic material for cultivation of plants. More specifically, the rooting plugs 11, 12 can be made from a substrate including material for cultivation of plants. Advantageously, the plug bodies are each formed as an integral part. The substrate may be formed as a composition. More preferably, the composition and/or material is spongy and/or penetrable to growing roots. Such and other suitable substrate materials and/or compositions are known in the art. For example,
the substrate material or composition may comprise organic fibres, e.g. coconut fibre, peat and/or bark. Here, the plug bodies 13, 14 may comprises for instance a substrate composition including particles joined by a bind agent, such as a non-toxic and/or organic glue. The joined particles may e.g. comprise organic fibres and/or soil particles.

Figure 4 shows a schematic side view of a rooting plug 1 configuration according to a fourth embodiment of the invention. Here, the first plug body 13 is provided, at its top surface 15, with a cavity 32 receiving the second plug body 14 so that the second plug body 14 including the fertilizer is located near the top of the first plug body 13. Then, at least a portion of the top surface 15 of the first plug body 13 contacts the bottom surface 20 of the second plug body 14. Further, a third plug body 33 including a plant 22’ is provided on the top surface 15 of the first plug body 13. Then, the first plug body 13 supports said third plug body 33. The plant 22’ has roots 23’ and a stem 25’. However, alternatively, a third plug body 33 including a single or multiple number of seedlings can be placed on top of the first plug body 13.

After placing the third plug body 33 with plant material on the top surface 15 of the first plug body 13, plant roots 23’ will grow downwardly into the first plug body 13. After some growth, the plant roots 23’ will also penetrate into the second plug body 14 containing fertilizer material that is preferably distributed over the entire volume or at least a substantial portion of the second plug body 14 to stimulate growth of the plant 22’ while reducing a chance that its roots 23’ are exposed to burn risks.

It is noted that many variants are possible. As an example, the geometry of the cavity 32 may be block shaped or cylindrically shaped having a circular cross section. Further, the second plug body 14 may be located at the side wall 17 of the first plug body 13, e.g. at least partially inside the first plug body 13, or at another location, e.g. in a central cavity on the top surface 15 of the first plug body 13.
Figure 5 shows a schematic perspective top view of a rooting plug configuration 1 according to a fifth embodiment of the invention. Again, at least a portion of the top surface 15 of the first plug body 13 contacts the bottom surface 20 of the second plug body 14, however such that the top surface 15 of the first plug body 13 is mainly flat and that the second plug body 14 is located on said top surface 15 of the first plug body 13. Also again, a third plug body 33 with plant material is placed on the top surface 15 of the first plug body 13, at some distance from the second plug body 14. Similar to the configuration shown in Fig. 4, plant roots 23' will grow downwardly into the first plug body 13. In principle, the roots 23' may further grow sidewardly and upwardly into the second plug body 14 containing fertilizer material.

However, the fertilizer material may be distributed and provided to the plant roots 23' in another manner, in the rooting plug configuration 1 shown in Fig. 5. The configuration 1 includes a moisture drip unit 34 that is connected to the first plug body 13 or provided in another manner such that droplets fall onto the second plug body 14. Then, moisture flows downwardly into the first plug body 13 taking along dissolved fertilizer material from the second plug body 14 towards plant roots 23' that have grown in the first plug body 13. As the amount of dripped moisture per time unit is relatively small, also the amount of fertilizer that flows into the first plug body is relatively small, per time unit, thereby minimizing root burning risks, but also minimizing any waste of the fertilizer material and minimizing an amount of fertilizer that is discharged as a waste residue into the environment.

Again, many variants are conceivable. As an example, the top surface 15 of the first plug body 13 may be curved or corrugated. Further, the first plug body 13 may be mainly block or cubic shaped as shown by the solid lines in Fig. 5, or the first plug body 13 may have an elongated structure such as shown by the interrupted lines in Fig. 5, e.g. forming a
slab. Then, preferably, the first plug body may support a multiple number of second plug bodies 14 and/or a multiple number of third plug bodies 33 including plant material.

The invention is not restricted to the embodiments described above. It will be understood that many variants are possible.

As an example, the rooting plug can in an advantageous embodiment be provided with a, preferably resilient, bottom part for closing of the bottom side of the root chamber.

In this context it is noted that the rooting plug configurations shown in Fig. 1-3 have plug bodies 13, 14 provided with a side surface 17, 18, respectively, that is slightly tapered towards its bottom surface 19, 20. However, in principle, the at least one of the side surfaces 17, 18 may have another geometry, e.g. a straight profile such that the cross sectional area of the body plugs is invariant along its height.

It is further noted that more than two rooting plugs can be included in the rooting plug configuration. As an example, three or four rooting plugs can be placed on top of each other such that at least a portion of the bottom surface of a first plug body contacts the top surface of a second plug body.

These and other embodiments will be apparent for the person skilled in the art and are considered to fall within the scope of the invention as defined in the following claims. For the purpose of clarity and a concise description features are described herein as part of the same or separate embodiments. However, it will be appreciated that the scope of the invention may include embodiments having combinations of all or some of the features described.
Conclusies

1. Wortelplug-opstelling voor het kweken van een plant, omvattende een eerste wortelplug en een tweede wortelplug, waarbij elke wortelplug is vervaardigd uit een substraat met organisch en/of niet-organisch materiaal ter vorming van respectievelijk een eerste en tweede pluglichaam, met een bovenvlak en een bodemvlak, waarbij ten minste een deel van het bodemvlak of bovenvlak van het eerste pluglichaam in aanraking is met ten minste een deel van respectievelijk het bovenvlak of bodemvlak van het tweede pluglichaam.

2. Wortelplug-opstelling volgens conclusie 1, waarbij het eerste en/of het tweede pluglichaam in hoofdzaak cilindrisch is gevormd met een zijvlak, en waarbij het zijvlak enigszins conisch toeloopt naar het bodemvlak.

3. Wortelplug-opstelling volgens conclusie 1 of 2, waarbij het tweede pluglichaam een meststof bevat.

4. Wortelplug-opstelling volgens conclusie 3, waarbij het eerste pluglichaam vrij van meststoffen is of een meststof bevat met een concentratie die lager is dan de concentratie van de meststof in het tweede pluglichaam.

5. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij de meststof in hoofdzaak uniform verdeeld is in het tweede pluglichaam.

6. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij de geometrie van aanrakende delen van respectievelijk het eerste en tweede pluglichaam ten opzichte van elkaar gelijkvormig zijn.

7. Wortelplug-opstelling volgens conclusie 1, waarbij ten minste een deel van het bodemvlak van het eerste pluglichaam in aanraking is met het bovenvlak van het tweede pluglichaam.
8. Wortelplug-opstelling volgens conclusie 7, waarbij het eerste pluglichaam op het tweede lichaam is geplaatst.

9. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij het bovenvlak van het tweede pluglichaam koepelvormig is.

10. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij het bodemvlak van het eerste pluglichaam een holte definieert die het tweede pluglichaam opneemt.

11. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij ten minste een deel van het bovenvlak van het eerste pluglichaam in aanraking is met het bodemvlak van het tweede pluglichaam.

12. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij het eerste pluglichaam is voorzien, bij het bovenvlak, van een holte die het tweede pluglichaam opneemt.


14. Wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij het eerste pluglichaam als een plaat is gevormd ter ondersteuning van een meervoudig aantal tweede pluglichamen.

15. Tray, omvattende een serie cellen en ten minste een wortelplug-opstelling volgens één van de voorgaande conclusies, waarbij de ten minste ene wortel-opstelling is opgenomen in een cel van de serie cellen.

16. Houder zoals een pot voor planten die een wortelplug-configuratie volgens een van de voorgaande conclusies 1-14 opneemt.
FIG. 1

FIG. 2

FIG. 3
Title:  A rooting plug configuration

Abstract

The invention relates to a rooting plug configuration for cultivation of a plant. The rooting plug configuration comprises a first rooting plug and a second rooting plug. Each rooting plug is made from a substrate including organic and/or non-organic material forming a first and second plug body, respectively, that is preferably substantially cylindrically shaped. Each plug body has a top surface and a bottom surface. Further, at least a portion of the bottom surface or the top surface of the first plug body contacts at least a portion of the top surface or the bottom surface, respectively, of the second plug body.

Figure 1
# Rapport betreffende nieuwheidsonderzoek van internationaal type

## Identificatie van de nationale aanvraag

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## Classificatie van het onderwerp

Volgens de internationale classificatie (IPC)

A01G24/44

## Onzochte gebieden van de techniek

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Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen

## GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad)

## GEBREK AAN EENHEID VAN UITVINDING (opmerkingen op aanvullingsblad)
ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE

A. CLASSIFICATIE VAN HET ONDERWERP
INV. A01G24/44
ADD.

Volgens de internationale classificatie van ontrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.

B. ONDERZOCHTE GEBIEDEN VAN DE TECHNIEK

Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen)
A01G

Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen

Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar van mogelijk, gebruikte trefwoorden)

EPO-Internal, WPI Data

C. VAN BELANG GEACHTDE DOCUMENTEN

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Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid
1 juni 2018

Naam en adres van de instantie
European Patent Office, P. B. 5819 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040; Fax. (+31-70) 340-3016

De bevoegde ambtenaar
Balzar, Maarten
### ONDERZOEKSRAPPORT BETREFFENDE HET RESULTAAT VAN HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE

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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 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 application
- Box No. VIII Certain observations on the application
Box No. I  Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.

2. With regard to any nucleotide and/or amino acid sequence disclosed in the 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
      - □ in electronic form

   c. time of filing/furnishing:
      - □ contained in the application as filed.
      - □ filed together with the application in electronic form.
      - □ furnished subsequently 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 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:

Box No. V  Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

   Novelty
   Yes:  Claims  2, 4, 9, 10, 14, 15
   No:  Claims  1, 3, 5-8, 11-13, 16

   Inventive step
   Yes:  Claims
   No:  Claims  1-16

   Industrial applicability
   Yes:  Claims  1-16
   No:  Claims

2. Citations and explanations

   see separate sheet
Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1 NL 2 004 703 C (FORTECO SERVICES B V [NL]) 14 november 2011 (2011-11-14)

D2 NL 1 002 139 C2 (MARSMAN HOLDING B V [NL]) 25 juli 1997 (1997-07-25)

D3 WO 02/47470 A1 (PELTON REFORESTATION LTD [CA]; PELTON NORMAN R [CA]) 20 juni 2002 (2002-06-20)

D4 WO 85/03191 A1 (HEINSTEDT DAVID) 1 augustus 1985 (1985-08-01)

1. The present application does not meet the criteria of patentability, because the subject-matter of claims 1, 3, 5-8, 11-13 and 16 is not new.

1.1 Document D1 discloses a 'wortelplug-opstelling (100/120/131, 200/241) voor het kweken van een plant (111,211) (figures 1 and 2; page 9, line 9 - page 10, line 15), omvattende een eerste wortelplug (100,200) en een tweede wortelplug (120,241) (figures 1 and 2; page 9, lines 9-34; page 7, lines 29-33; page 3, line 16, 'het plaatsen van een zaadje in een eerste substraat, zoals in een kiemplug', note that the term 'substraat' is used to define a 'plug'), waarbij elke wortelplug (100,120,131,200,241) is vervaardigd uit een substraat met organisch en/of niet-organisch materiaal ter vorming van respectievelijk een eerste en tweede pluglichaam (page 4, lines 3-8, note 'Het eerste en eindsubstraat ... Bij voorkeur omvat het substraat kokos'), met een bovenvlak en een bodemvlak (figures 1 and 2, note the different upper and lower surfaces), waarbij ten minste een deel van het bodemvlak of bovenvlak van het eerste pluglichaam (100) in aanraking is met ten minste een deel van respectievelijk het bovenvlak of bodemvlak van het tweede pluglichaam (120) (figure 1; page 9, lines 9-34; also note that elements 100 and 120 together
may be considered a first 'pluglichaam'. In this case the lower surface of first 'pluglichaam' 100/120 is in contact with the upper side of second 'pluglichaam' 131'.

The subject-matter of independent claim 1 is therefore not new.

1.1.1 Similar argumentation (see above point 1.1) may be applied to document D2 (figures 1, 2, 5 and 6; page 2, line 30 - page 4, line 4).

1.2 Document D1 discloses further that

# 'het tweede pluglichaam een meststof bevat' (page 4, lines 12-14, note '... Eventueel worden gebruikelijke voedingsstoffen en eventuele micronutrienten toegevoegd ...'). (claim 3)

# 'de meststof in hoofdzaak uniform verdeeld is in het tweede pluglichaam' (page 4, lines 12-14, implicitly disclosed). (claim 5)

# 'de geometrie van aanrakende delen van respectievelijk het eerste en tweede pluglichaam ten opzichte van elkaar gelijkvormig zijn' (figures 1 and 2, note that the parts which are in contact are geometrical flat). (claim 6)

# 'ten minste een deel van het bodemvlak van het eerste pluglichaam in aanraking is met het bovenvlak van het tweede pluglichaam' (figure 1). (claim 7)

# 'het eerste pluglichaam op het tweede lichaam is geplaatst' (figure 1). (claim 8)

# 'ten minste een deel van het bovenvlak van het eerste pluglichaam in aanraking is met het bodemvlak van het tweede pluglichaam' (figure 1). (claim 11)

# 'het eerste pluglichaam is voorzien, bij het bovenvlak, van een holte die het tweede pluglichaam opneemt' (figure 1). (claim 12)

# het bovenvlak van het eerste pluglichaam in hoofdzaak vlak is en waarbij het tweede pluglichaam zich op het bovenvlak van het eerste pluglichaam
bevindt (figure 1). (claim 13)

The subject-matter of dependent claims 3, 5-8 and 11-13 is therefore not new.

1.3 Concerning claim 16, document D1 further discloses a 'houder zoals een pot voor planten die een wortelplug-configuratie opneemt' (figure 1 and 2; claim 1, note 'het verschaffen van een vochtabsorberend eindsubstraat bij voorkeur in een houder, bij voorkeur een eindsubstraat uit één stuk, ...'; page 9, line 9 - page 10, line 15, note 'houder'). The subject-matter of dependent claim 16 is therefore not new.

2 The present application does not meet the criteria of patentability, because the subject-matter of claims 2, 4, 9, 10, 14 and 15 does not involve an inventive step.

2.1 In claim 2, a slight constructional change in the 'wortelplug-opstelling' of document D1 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. For example, note the conical shape of the plugs in documents D2 and D4 (figure 1). Consequently, the subject-matter of claim 2 lacks an inventive step.

2.2 Document D1 describes that to the 'eindsubstraat' liquid containing nutrients etc. may be applied. The additional features of claim 4 are merely some of several straightforward possibilities from which the skilled person would select, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 4 also lacks an inventive step.

2.3 The additional features of claims 9 and 10 are merely some of several straightforward possibilities from which the skilled person would select, especially as the advantages thus achieved can readily be foreseen. For example, note document D3 (figure 6, abstract). Consequently, the subject-matter of claims 9 and 10 also lacks an inventive step.
2.4 Concerning claim 14, document D1 describes the use of a 'mat' (page 9, lines 16-17). The additional feature of claim 14 is merely one of several straightforward possibilities from which the skilled person would select, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 14 also lacks an inventive step.

2.5 The additional feature of claim 15 (the use of trays for the development of plants growing in plugs) seems to represent merely one of several straightforward possibilities from which the skilled person would select, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 15 also lacks an inventive step.