[Document Name] Claims

[Claim 1]

Culture apparatus for a plant whole body comprising

a light-shading case that has at least one through hole on its ceiling surface, holds culturing liquid on its bottom surface and grows vapor-phase roots without using soil within a spacial area formed with the ceiling surface, the bottom surface and an inner side surface; and

an internal object showing capillary force arranged on at least a part of the inner side surface from among an inner surface forming the spacial area of the light-shading case.

[Claim 2]

The culture apparatus for a plant whole body according to claim 1, wherein a water-level adjustment means for adjusting a water level of the culturing liquid is connected to the light-shading case.

[Claim 3]

The culture apparatus for a plant whole body according to claim 1, wherein the light-shading case comprises a light-shading case main body in a form of a box, and a lid that covers an upper opening of the light-shading case main body and is removable.

[Claim 4]

The culture apparatus for a plant whole body according to claim 3, wherein the lid is hung by spanning multiple hanging tools that span opposing opening edges of the light-shading case main body.

[Claim 5]

The culture apparatus for a plant whole body according to claim 1, wherein the through hole is in a form of a slit-like long hole.

[Claim 6]

The culture apparatus for a plant whole body according to claim 1, wherein a door that can be opened and closed is set on at least one side of the light-shading case.

[Claim 7]

The culture apparatus for a plant whole body according to claim 1, wherein the internal object is arranged on the entire inner side surface of the light-shading case.

[Claim 8]

The culture apparatus for a plant whole body according to claim 1, wherein the internal object is arranged on the inner surface of the lid of the light-shading case other than an area of the through hole.

[Claim 9]

The culture apparatus for a plant whole body according to claim 1, wherein another internal object having water retention capacity to supply the culturing liquid to the plant whole body is laid on the entire of the bottom surface of the light-shading case.

[Claim 10]

The culture apparatus for a plant whole body according to claim 1, wherein the internal object is removably arranged on the light-shading case via at least one holder that is attached on at least the inner side surface from among the inner surface of the light-shading case.

[Claim 11]

The culture apparatus for a plant whole body according to claim 1, wherein the internal object is arranged diagonally by leaning against the inner side surface of the light-shading case.

[Claim 12]

The culture apparatus for a plant whole body according claim 1, wherein a mounting table that mounts the plant whole body is set on the bottom surface of the light-shading case.

[Claim 13]

The culture apparatus for a plant whole body according to claim 12, wherein the mounting table is made of the same material as that for the internal object.

[Claim 14]

The culture apparatus for a plant whole body according to claim 12, wherein the mounting table is made up of a drain board.

[Claim 15]

The culture apparatus for a plant whole body according to claim 1, wherein the internal object is a fired body made of a non-metal inorganic solid material, and contains continuous pores that are voids, and the void rate of the entire fired body is 10 to 80% (vol/vol), the average pore size of the void is 3 μm or less, and the voids with a pore size of 3 μm or less account for 70% or more of the total voids in volume ratio.

[Claim 16]

The culture apparatus for a plant whole body according to claim 1, wherein a lighting case provided with a light source illuminating light to a top surface of the light-shading case is stacked on the light-shading case.

[Claim 17]

The culture apparatus for a plant whole body according to claim 1, wherein a lighting unit provided with a light source illuminating light to a top surface of the light-shading case is set above the light-shading case.

[Claim 18]

A culture method for a plant whole body using the culture apparatus for a plant whole body according to any one of claims 1 to 17, which comprises at least

a step of forming a spacial area capable of accommodating a root system of the plant whole body without using soil within the light-shading case by arranging an internal object showing capillary force at least a part of an inner side surface from among an inner surface of the light-shading case that holds culturing liquid and is formed with a ceiling surface, a bottom surface and the inner side surface;

a step of supplying and holding a culturing liquid on the bottom surface of the light-shading case before or after the step of forming a spacial area;

a step of growing liquid-phase roots that absorb a water component and nutrition from the liquid phase in the culturing liquid held within the light-shading case; and

a step of growing vapor-phase roots that absorb oxygen from the vapor phase in a water component and oxygen present inside the spacial area of the light-shading case.

[Claim 19]

The culture method for a plant whole body according to claim 18, wherein the plant whole body is placed on a mounting table which is set on the bottom surface of the light-shading case for culturing.

[Claim 20]

The culture method for a plant whole body according to claim 18, wherein the culturing liquid held in the light-shading case is water or a nutrient solution containing nutrition required for growing the plant whole body to be cultured, and is stagnant water.

[Claim 21]

The culture method for a plant whole body according to claim 20, wherein the nutrition is an essential macroelement selected from the group consisting of nitrogen, phosphate, potassium, calcium, magnesium and sulfur; an essential trace element selected from the group consisting of iron, manganese, boron, zinc, molybdenum, copper, chlorine, nickel; or an useful element selected from the group consisting of silicon, sodium, cobalt.