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A Dendrobium Culture Device

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ABSTRACT

The utility model discloses a *Dendrobium* culture device, which comprises an incubator, a main body, a pedestal and a water tank. Wherein, the pedestal is provided with universal wheels at four corners of its bottom and a main body at its top. Moreover, both sides of the main body top are installed with batteries, whose top is fixed with a solar panel through a bracket. The output end of the solar panel is electrically connected with the input end of the batteries through a photovoltaic controller. One side of the main body is hinged with a door, and a control panel is arranged at the middle position of the door. While, the other side is equipped with a water tank, whose internal bottom is provided with a water pump. There is a stone layer, a ceramsite layer and a pine bark layer in the utility model, wherein the stone layer is convenient for water drainage and air permeability, the ceramsite layer has good water absorption and storage capacity, and the fermented pine bark is beneficial to the growth of *Dendrobium*.

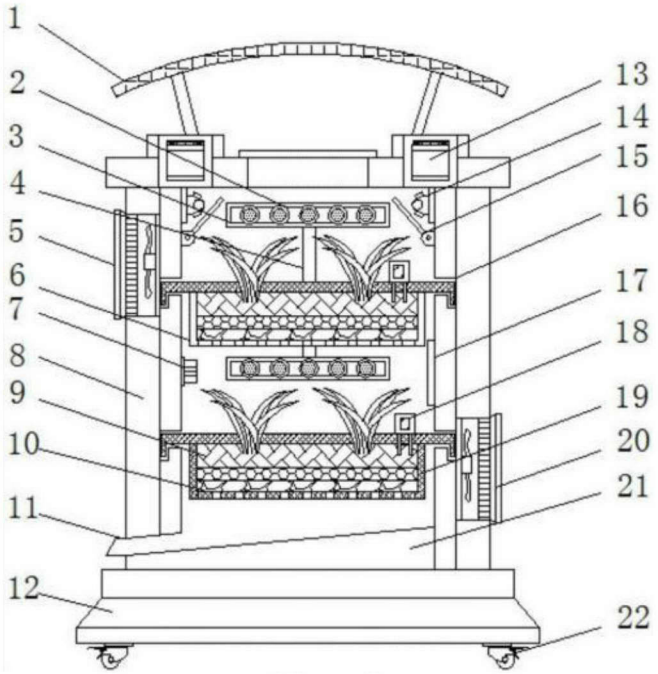


Figure 1
A schematic diagram of the front view section of the utility model

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A Dendrobium Culture Device

TECHNICAL FIELD

[01] The utility model relates to the technical field of *Dendrobium* culture device, specifically a *Dendrobium* culture device.

BACKGROUND

[02] *Dendrobium* has a long history of medicinal use and can treat a variety of diseases with rich medicinal ingredients. Clinically, it is mainly used for the treatment or adjuvant therapy of chronic pharyngitis, gastrointestinal diseases, ophthalmic diseases, thrombotic occlusive disease, diabetes, arthritis and cancer. *Dendrobium* can significantly increase the level of superoxide dismutase (SOD), reduce the level of lipid peroxide (LPO), regulate the level of monoamine neurotransmitters and inhibit the similar monoamine oxidase (MAO) to play a role in delaying aging.

[03] In recent years, *Dendrobium* polysaccharide has attracted much attention and it also has significant effects on immune enhancing activity, anti-aging and anti-radiation. *Dendrobium* is a traditional Chinese medicine. Modern clinical medicine has proved that *Dendrobium* can inhibit the activity of kidney microsome Na/K-ATPase, nourish yin and clear away heat.

[04] Diabetes has gradually become the first killer affecting human health. Modern medical research shows that *Dendrobium* can significantly reduce blood glucose and glucagon, increase insulin and C-peptide secretion, inhibit insulin degradation, improve insulin sensitivity index, and inhibit free fatty acid secretion in diabetic model rats, at the same time, it can also significantly reduce tumour necrosis factor in obese diabetic rats.

[05] The medicinal value of *Dendrobium* is high, while due to harsh growth environment requirements, its yield is scarce. Therefore, a special *Dendrobium* culture device is urgently needed for centralized cultivation of *Dendrobium*.

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SUMMARY

[06] The purpose of the utility model is to provide a culture device of *Dendrobium*, so as to solve the problems raised in the background technology.

[07] In order to achieve the above-mentioned purpose, the utility model provides the following technical scheme:

[08] A *Dendrobium* culture device comprises an incubator, a main body, a pedestal and a water tank. Wherein, the incubator is provided with universal wheels at four corners of its bottom and a main body at its top. Moreover, both sides of the main body top are installed with batteries, whose top is fixed with a solar panel through a bracket. The output end of the solar panel is electrically connected with the input end of the batteries through a photovoltaic controller. One side of the main body is hinged with a door, and a control panel is arranged at the middle position of the door. While, the other side is equipped with a water tank, whose internal bottom is provided with a water pump. Wherein, output end of the water pump is provided with a water guide pipe. At the top of the main body, there is a first fan installed at one side and a transparent glass at the middle. Meanwhile, a second fan is arranged at the bottom of the other side. As for the interior of main body, there are light-compensating lamps at both top sides and a weatherboard at the bottom. Arranging a water outlet at the bottom side of the main body close to the first fan and a water delivery pipe in the main body close to the water tank. Wherein, the middle position of the delivery pipe is connected with aqueducts. Installing spraying devices at the top and middle positions close to the water tank inside the main body, and the spraying devices are equipped with nozzles and connected with the water delivery pipe. Inside the main body, there is a temperature sensor at the middle position of the same side of the first fan, and a heating block at the middle position of the same side of the second fan. Arranging incubators with sliding chutes on both sides under the spraying devices. Moreover, there is a pine bark layer, a ceramsite layer and a stone layer downward at the internal bottom of the incubator. Wherein, a humidity sensor is arranged above the pine bark layer close to the second fan.

[09] Optimally, there are filter screens inside the first fan and the second fan.

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[010] Optimally, the inner wall of the main body is provided with an insulating layer.

[011] Optimally, under the light-compensating lamps, shadow shields are hinged with the main body.

[012] Optimally, an observation window is arranged on the door above the control panel.

[013] Compared with the prior technique, the utility model has the following beneficial effects:

[014] There is a stone layer, a ceramsite layer and a pine bark layer in the utility model, wherein the stone layer is convenient for water drainage and air permeability, the ceramsite layer has good water absorption and storage capacity, and the fermented pine bark layer is beneficial to the growth of *Dendrobium*. Through the installation of transparent glass and solar panels, *Dendrobium* can get sufficient light, and avoid direct sunlight, which is more in line with the growth habits of *Dendrobium.* There are temperature sensors and heating blocks, wherein the temperature sensors are convenient for monitoring real-time temperature in the device, so as to control the temperature. The first fan and the second fan are arranged in the device to improve the ventilation of the device. Meanwhile, setting filter screens at the output ends of the first fan and the second fan can prevent the external dust from entering the device and keep the device clean. Through the installation of humidity sensor, water tank and spraying device, it is easy to control the soil moisture in the incubator at any time, which increases the practicability of the device. The device can be matched with both sides of the incubator by installing chutes, which is convenient for the installation and removal of the incubator. The device can get enough light with light-compensating lamps and shadow shield. At the same time, there are solar panels and batteries. Wherein, the output end of solar panels converts light energy into electric energy through photovoltaic controller and stores electric energy into batteries, so that the device does not need additional power supply, which is convenient to use, energy-saving and environmental protection.

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BRIEF DESCRIPTION OF THE FIGURES

[015] Figure. 1 is a schematic diagram of the front view section of the utility model.

[016] Figure. 2 is a front view schematic diagram of the utility model.

[017] Figure. 3 is a top view schematic diagram of the utility model.

[018] In figures, 1-solar panel, 2-nozzle, 3-spraying devices, 4-water delivery pipe, 5-the first fan, 6-incubator, 7-temperature sensor, 8-main body, 9-pine bark layer, 10-stone layer, 11-water outlet, 12-pedestal, 13-battery, 14-light-compensating lamp, 15-shadow shield, 16-sliding chute, 17-heating block, 18-humidity sensor, 19-ceramsite layer, 20-the second fan, 21-water guide plate, 22-universal wheel, 23-transparent glass, 24-observation window, 25-door, 26-control panel, 27-water guide pipe, 28-water tank, 29-water pump.

DESCRIPTION OF THE INVENTION

[019] In the following, the technical scheme in the embodiment of the utility model will be described clearly and completely in combination with the figures in the embodiment of the utility model. Obviously, the described embodiments are only part of the embodiments of the utility model, not all of them. Based on the embodiments of the utility model, all other embodiments obtained by ordinary technicians in the field without creative labour should belong to the protection scope of the utility model.

[020] Referring to figures 1-3, an embodiment provided by the utility model is as following:

[021] A *Dendrobium* culture device, characterized by comprising an incubator (6), a main body (8), a pedestal (12) and a water tank (28). Wherein, the pedestal (12) is provided with universal wheels (22) at four corners and a main body (8) at its top. Wherein, there is an insulating layer in the inner wall of the main body (8), providing good insulation effect.

[022] Moreover, both sides of the main body (8) top are installed with batteries (13), whose top is fixed with a solar panel (1) through a bracket. The output end of the

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solar panel (1) is electrically connected with the input end of the batteries (13) through a photovoltaic controller. One side of the main body is hinged with a door (25), and a control panel (26) is arranged at the middle position of the door (25). Moreover, an observation window (24) is arranged on the door (25) above the control panel (26) for convenient viewing. While, the other side is equipped with a water tank (28), whose internal bottom is provided with a water pump (29) of ISW. Wherein, output end of the water pump (29) is provided with a water guide pipe (27). At the top of the main body (8), there is a first fan (5) installed at one side and a transparent glass (23) at the middle. Meanwhile, a second fan (20) is arranged at the bottom of the other side. In addition, there are filter screens at the output ends of the first fan (5) and the second fan (20) preventing the external dust from entering the device and keeping the device clean. A transparent glass (23) is arranged at the middle of the top of the main body (8), and the top of both sides of the main body (8) is provided with a light-compensating lamp (14), and a shadow shield (15) is hinged on the main body (8) below the light-compensating lamp (14), so that *Dendrobium* can get enough light and avoid direct sunlight.

[023] The bottom end of the main body (8) is provided with a water guide plate (21), and the bottom end of the side of the main body (8) close to the first fan (5) is provided with a water outlet (11). And one end of the main body (8) close to the water tank (28) is installed with a water delivery pipe (4), and the middle position of the water delivery pipe (4) is connected with the water guide pipe (27). Installing spraying devices (3) at the top and middle positions close to the water tank (28) inside the main body (8), and the spraying devices (3) are equipped with nozzles (2) and connected with the water delivery pipe (4). Inside the main body (8), there is a temperature sensor (7) of CWDZ11 at the middle position of the same side of the first fan (5), and a heating block (17) at the middle position of the same side of the second fan (20). Arranging incubators (6) with sliding chutes (16) on both sides under the spraying devices (3). Moreover, there is a pine bark layer (9), a ceramsite layer (19) and a stone layer (10) downward at the internal bottom of the incubator (6). Wherein, a humidity sensor (18) of OSC-1W is arranged above the pine bark layer (9) close to the second fan (20).

[024] Working principle of the utility model is as follows:

[025] When in use, the battery (13) provides power for the device. First, opening the door (25), and then fix the incubator (6) into the main body (8) through the chute

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(16). According to the different needs of different periods of *Dendrobium* development, setting appropriate temperature and humidity on the control panel (26). Then heating block (17) and the temperature sensor (7) work together to keep the temperature in the device suitable. At the same time, the humidity sensor (18), the spraying device (3) and the water pump (29) work together to ensure appropriate humidity in the incubator (6). The water flows through the pine bark layer (9), the ceramsite layer (19) and the stone layer (10) in turn. Then water flows out of the water outlet (11) along the water guide plate (21) and is collected. The solar pane (l) is used to block the sunlight thereby avoiding direct sunlight on *Dendrobium*. Utilizing the first fan (5) and the second fan (20) to perform heat dissipation and ventilation so as to ensure the proper environment in the main body (8).

[026] Although the invention has been described with reference to specific examples, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms, in keeping with the broad principles and the spirit of the invention described herein.

[027] The present invention and the described embodiments specifically include the best method known to the applicant of performing the invention. The present invention and the described preferred embodiments specifically include at least one feature that is industrially applicable

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A *Dendrobium* culture device, characterized by comprising an incubator (6), a main body (8), a pedestal (12) and a water tank (28). Wherein, the incubator (6) is provided with universal wheels (22) at four corners of its bottom and a main body (8) at its top. Moreover, both sides of the main body (8) top are installed with batteries (13), whose top is fixed with a solar panel (1) through a bracket. The output end of the solar panel (1) is electrically connected with the input end of the batteries (13) through a photovoltaic controller. One side of the main body is hinged with a door (25), and a control panel (26) is arranged at the middle position of the door (25). While, the other side is equipped with a water tank (28), whose internal bottom is provided with a water pump (29). Wherein, output end of the water pump (29) is provided with a water guide pipe (27). At the top of the main body (8), there is a first fan (5) installed at one side and a transparent glass (23) at the middle. Meanwhile, a second fan (20) is arranged at the bottom of the other side. As for the interior of main body (8), there are light-compensating lamps (14) at both top sides and a water guide plate (21) at the bottom. Arranging a water outlet (11) at the bottom side of the main body (8) close to the first fan (5) and a water delivery pipe (4) in the main body (8) close to the water tank (28). Wherein, the middle position of the delivery pipe (4) is connected with aqueducts (27). Installing spraying devices (3) at the top and middle positions close to the water tank (28) inside the main body (8), and the spraying devices (3) are equipped with nozzles (2) and connected with the water delivery pipe (4). Inside the main body (8), there is a temperature sensor (7) at the middle position of the same side of the first fan (5), and a heating block (17) at the middle position of the same side of the second fan (20). Arranging incubators (6) with sliding chutes (16) on both sides under the spraying devices (3). Moreover, there is a pine bark layer (9), a ceramsite layer (19) and a stone layer (10) downward at the internal bottom of the incubator (6). Wherein, a humidity sensor (18) is arranged above the pine bark layer (9) close to the second fan (20).

2. The *Dendrobium* culture device according to claim 1, characterized in that there are filter screens inside the first fan (5) and the second fan (20).

3. The *Dendrobium* culture device according to claim 1, characterized in that the inner wall of the main body (8) is provided with an insulating layer.

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4. The *Dendrobium* culture device according to claim 1, characterized in that under each light-compensating lamp (14), there is a shadow shield (15) hinged with the main body (8).

5. The *Dendrobium* culture device according to claim 1, characterized in that an observation window (24) is arranged on the door (25) above the control panel (26).

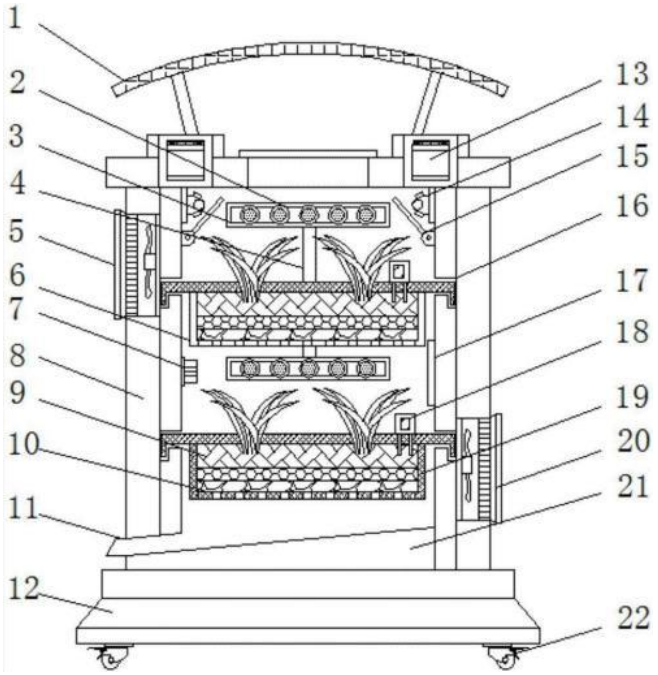


Figure 1
A schematic diagram of the front view section of the utility model

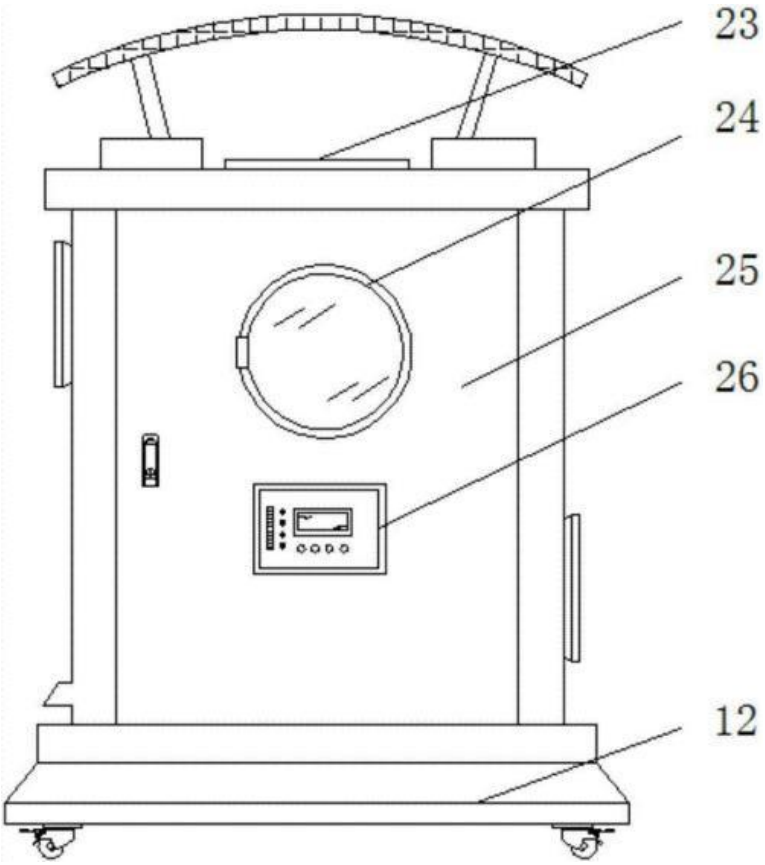


Figure 2
A front view schematic diagram of the utility model

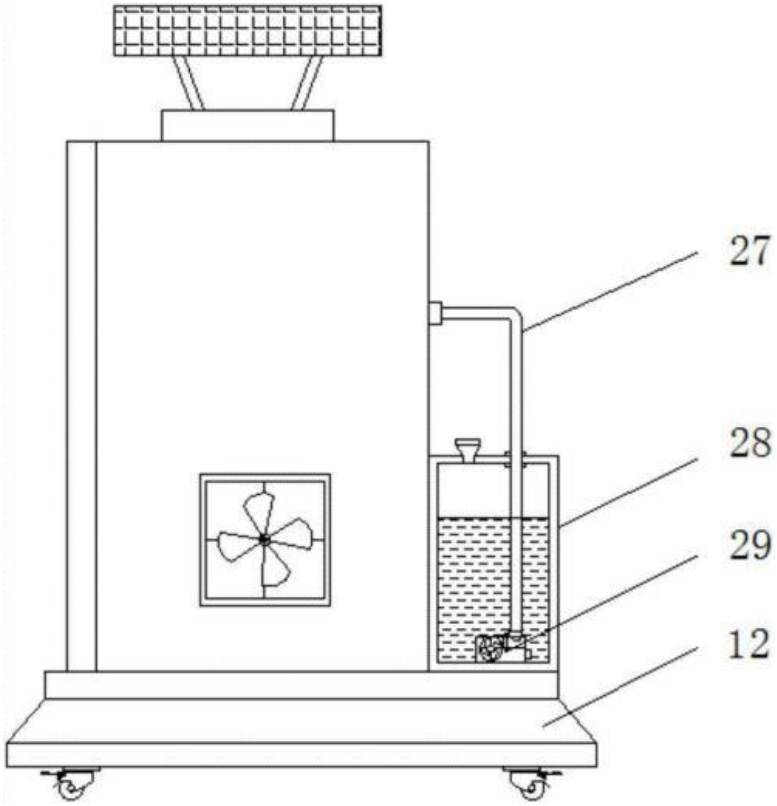


Figure 3
A top view schematic diagram of the utility model