Claims

1. A vertical plant cultivation closed system, the vertical plant cultivation closed system comprising:

a growing space, the growing space comprising, four side walls and an upper and a lower wall;

an environmental control unit, the growing space and the environmental control unit defining a closed space and the environment control unit comprising, a light control unit, a sound control unit and an air movement and temperature control unit, whereby the light control unit, the sound control unit and the air movement and temperature control unit control an environment of the growing space;

at least one tower pot, the at least one tower pot containing at least one plant, whereby roots of the at least one plant are fixed at an angle of 30 to 80 degrees; and

a humidifier or fog generator, the humidifier or fog generator is fixed on top of the roots of the at least one plant in at least one position.

2. The vertical plant cultivation closed system of claim 1, wherein the roots of the at least one plant is fixed in the at least one tower pot between 8 to 50 centimeters from the humidifier or fog generator.

3. The vertical plant cultivation closed system of claim 1 or 2, wherein the humidifier or fog generator is selected head a nutrient atomized mist tube connected to a solution fog generator or both.

4. The vertical plant cultivation closed system of claim 3, wherein the ultrasonic head or the nutrient atomized mist tube connected to a solution fog generator generates frequencies between 1 to 7 megahertz.

5. The vertical plant cultivation closed system of claim 4, wherein a distance between a base of the at least one tower pot and the roots of the at least one plant is between 8 to 30 centimeters.

6. The vertical plant cultivation closed system of claim 5, wherein:

the light control unit controls light sources fixed on an upper side wall, the four side walls or between the at least one tower pot by transmitting a signal through a wire system;

the sound control unit controls sound sources; and

the air movement and temperature control unit controls air movement and temperature sources installed on the four side walls and the upper and the lower wall by receiving carbon dioxide from a gas tank and air from an air movement control unit, whereby air flow is generated, and sending controlled air to the air movement and temperature sources.

7. The vertical plant cultivation closed system of claim 6, wherein the air movement and temperature control unit controls the environment of the growing space at a temperature between 5 and 35 degrees Celsius.

8. The vertical plant cultivation closed system of claim 6, wherein air movement sources

generate air movement at a rate of 0.5-3 m/s, thereby continuously carrying carbon dioxide in the amount of 500-2000 micro mol/mol to the at least one plants.

9. The vertical plant cultivation closed system of claim 8, wherein the air movement sources control the humidity between to 40 to 80 percent.

10. The vertical plant cultivation closed system of claims 7, 8 and 9, wherein the at least one tower pot is made from a material selected from any one of polyvinyl chloride, polyethylene, polypropylene, stainless steel 316L, stainless steel 304, stainless steel 308 or equivalent.

11. The vertical plant cultivation closed system of claim 10, wherein the at least one tower pot has a hole cut in a circle or N-polygon shape and the hole has a diameter between 30 to 50 millimeters to connect with plant tubes.

12. The vertical plant cultivation closed system of claim 11, wherein the at least one tower pot has a reflecting surface that can scatter light and the reflecting surface has a photosynthetic photon flux density between 100 to 1000 micron mol/sqr.m sec.