CLAIMS

1. A system for air purification, comprising:
   - at least a first plant and a second plant, and
   - a voltage pulse device connectable to a power source for generating and transmitting a voltage pulse to the first plant,

   wherein the second plant is connected to the first plant using at least one voltage pulse transmission unit, and the first plant and the second plant are arranged to form one or more contact areas at a leaf portion.

2. The system according to claim 1, wherein the at least one voltage pulse transmission unit is configured to transmit the voltage pulse from a stem portion or a root portion of the first plant to a stem portion or a root portion of the second plant.

3. The system according to claim 1~~ or 2~~, wherein the voltage pulse device comprises:
   - a voltage pulse generating circuit configured to receive an input voltage derived from the power source, and to generate the voltage pulse of a desired voltage level,
   - an output monitoring circuit connected to ~~the~~an output side of the voltage pulse generating circuit, the output monitoring circuit being operable to detect at least one of the following operational parameters: an output voltage level, an output voltage ramping rate, an output current level; and
   - an electronic controller arranged in data communication with the voltage pulse generating circuit and the output monitoring circuit, the electronic controller being operable to receive at least one of the operational parameters from the output monitoring circuit and to control operation of the voltage pulse generating circuit based on a ~~per~~pre-determined rule.

4. The system according to claim 3, wherein the output monitoring circuit comprises a voltage sensing module connected to a voltage output line of the voltage pulse generating circuit, and a current sensing module connected to a ground reference line of the voltage pulse generating circuit.

5. The system according to claim 4, wherein the voltage sensing module connected to the voltage output line comprises a voltage divider, wherein the output voltage is divided by a pre-determined number for measurement.

6. The system according to ~~any one of claims~~claim 3 ~~to 5~~, wherein the output monitoring circuit being operable to detect the output voltage level, the electronic controller ~~is~~being operable to receive the detected output voltage level, and the electronic controller being operable to selectively deactivate the voltage pulse generating circuit based on the detected output voltage level.

7. The system according to ~~any one of claims~~claim 3 ~~to 6~~, wherein after the voltage pulse generating circuit is activated and in a transient state before the output voltage reaches the desired voltage level, the output monitoring circuit being operable to detect the output voltage ramping rate, the electronic controller ~~is~~being operable to receive the output voltage ramping rate, and the electronic controller being operable to selectively deactivate the voltage pulse generating circuit based on the detected output voltage ramping rate.

8. The system according to ~~any one of claims~~claim 3 ~~to 7~~, wherein in a steady state where the desired voltage level is reached, the output monitoring circuit being operable to detect the output current level, the electronic controller ~~is~~being operable to receive the detected output current level, and the electronic controller being operable to selectively deactivate the voltage pulse generating circuit based on the detected output current level.

9. The system according to ~~any one of the preceding claims~~claim 1, wherein the voltage pulse device is connectable to a stimulating probe for transmitting the voltage pulse to a root portion of the first plant.

10. The system according to ~~any one of the preceding claims~~claim 1, further comprising a power supply device for deriving a pre-determined input voltage for the voltage pulse device.

11. The system according to ~~any one of the preceding claims~~claim 1, further comprising a proximity sensing module configured to detect an intruding object.

12. The system according to ~~any one of the preceding claims~~claim 1, further comprising a support structure for holding the first plant and the second plant in a desired position with respect to each other.

13. The system according to ~~any one of the preceding claims~~claim 1, further comprising a ventilation mechanism for facilitating air flow in a pre-determined direction ~~(~~and/or at a pre-determined rate~~)~~. .

~~14. A system for air purification, comprising:~~

~~a plurality of plants mounted on a support structure, and~~

~~at least one voltage pulse device connectable to a power source for generating and transmitting a voltage pulse to the plurality of plants,~~

~~wherein each one of the plurality of plants is connected with another plant using at least one voltage pulse transmission unit and/or is configured to form one or more contact areas with another plant at a leaf portion thereof.~~

~~15. The system according to claim 14, wherein the voltage pulse transmission unit is configured to transmit the voltage pulse from a stem portion or a root portion of one plant to a stem portion or a root portion of another plant.~~

~~16~~14. The system according to claim ~~14 or 15~~1, wherein the voltage pulse device comprises:

- a voltage pulse generating circuit configured to ~~receive an input voltage from the power source, and to~~ generate ~~the~~a voltage pulse of a desired voltage level and a desired pulse frequency~~,~~ from an input voltage,
- an output monitoring circuit connected to ~~the~~an output side of the voltage pulse generating circuit, the output monitoring circuit ~~being~~ operable to detect at least one of the following operational parameters: an output voltage level, an output voltage ramping rate, an output current level; and
- an electronic controller arranged in data communication with the voltage pulse generating circuit and the output monitoring circuit, the electronic controller ~~being~~ operable to receive ~~at least one of~~ the detected operational ~~parameters from the output monitoring circuit~~parameter and to control operation of the voltage pulse generating circuit based on a ~~per~~pre-determined rule.

~~17~~15. The system according to claim ~~16,~~ 14,

wherein the output monitoring circuit comprises a voltage sensing module connected to a voltage output line of the voltage pulse generating circuit, and a current sensing module connected to a ground reference line of the voltage pulse generating circuit~~.~~; and

~~18. The system according to claim 17,~~ wherein the voltage sensing module comprises a voltage divider, wherein the output voltage level is divided by a pre-determined number for measurement.

~~19~~16. The system according to ~~any one of claims 16 to 18~~claim 14, wherein the output monitoring circuit being operable to detect the output voltage level, the electronic controller ~~is~~being operable to receive the detected output voltage level, and the electronic controller being operable to selectively ~~activate~~deactivate the voltage pulse generating circuit based on the detected output voltage level.

~~20~~17. The system according to ~~any one of claims 16 to 19~~claim 14, wherein after the voltage pulse generating circuit is activated and in a transient state before the output voltage reaches the desired voltage level, the output monitoring circuit being operable to detect the output voltage ramping rate, the electronic controller ~~is~~being operable to receive the detected output voltage ramping rate, and the electronic controller being operable to selectively deactivate the voltage pulse generating circuit based on the detected output voltage ramping rate.

~~21~~18. The system according to ~~any one of claims 16 to 20~~claim 14, wherein in a steady state where the desired voltage level is reached, the output monitoring circuit being operable to detect the output current level, the electronic controller ~~is~~being operable to receive the detected output current level, and the electronic controller being operable to selectively deactivate the voltage pulse generating circuit based on the detected output current level.

~~22~~19. The system according to ~~any one of claims~~claim 14 ~~to 21~~, wherein the voltage pulse device comprises a stimulating probe for conducting the voltage pulse to a root portion of the first plant~~at least one of the plurality of plants.~~

~~23. The system according to any one of claims 14 to 22, further comprising a proximity sensing module configured to detect an intruding object.~~

~~24. The system according to any one of claims 14 to 23, further comprising a power supply device for deriving a pre-determined input voltage for the voltage pulse device.~~

~~25. The system according to any one of claims 14 to 24, wherein the support structure comprises one or more planar surfaces, and/or one or more curved surfaces.~~

~~26. The system according to any one of claims 14 to 25, further comprising a watering mechanism configured to direct water from a water source to the plurality of plants, and to direct excess water from the plurality of plants to a water collector and/or to another system.~~

~~27. The system according to any one of claims 14 to 26, further comprising a ventilation mechanism for facilitating air flow in a pre-determined direction.~~

~~28. A voltage pulse device for use with a system according to claim 1 or claim 14 comprising:~~

- ~~a voltage pulse generating circuit configured to generate a voltage pulse of a desired voltage level and a desired pulse frequency from an input voltage,~~
- ~~an output monitoring circuit connected to the output side of the voltage pulse generating circuit, the output monitoring circuit operable to detect at least one of the following operational parameters: an output voltage level, an output voltage ramping rate, an output current level; and~~
- ~~an electronic controller arranged in data communication with the voltage pulse generating circuit and the output monitoring circuit, the electronic controller operable to receive the detected operational parameter and to control operation of the voltage pulse generating circuit based on based on per-determined rule.~~

~~29. The voltage pulse device according to claim 28, wherein the voltage sensing module comprises a voltage divider, wherein the output voltage level is divided by a pre-determined number for measurement.~~

~~30. The voltage pulse device according to any one of claims 28 to 29, wherein the electronic controller is operable to selectively activate the voltage pulse generating circuit based on the detected voltage level.~~

~~31. The voltage pulse device according to any one of claims 28 to 30, wherein after the voltage pulse generating circuit is activated and in a transient state before the output voltage reaches the desired voltage level, the electronic controller is operable to selectively deactivate the voltage pulse generating circuit based on the detected output voltage ramping rate.~~

~~32. The voltage pulse device according to any one of claims 28 to 31, wherein in a steady state where the desired voltage level is reached, the electronic controller is operable to selectively deactivate the voltage generating circuit based on the detected output current level.~~

~~33. The voltage pulse device according to any one of claims 28 to 32, wherein the voltage pulse device comprises a stimulating probe for conducting the voltage pulse to a root portion of at least one of the plurality of plants.~~