Claims

1. An apparatus for generating negative air ions from plants, the apparatus comprising:

a planter comprising soil and one or more plants grown on the soil; and

a portable device co-operable with the planter for generating negative air ions from the plants, the portable device comprising:

a pulse generator for generating voltage pulses from an internal operating frequency of the pulse generator ranging from 18 kHz to 48 kHz, the voltage pulses having an output pulse frequency ranging from 5 kHz to 40 kHz and an output voltage ranging from 1 kV to 40 kV;

a pulse probe insertable into the soil for conducting the voltage pulses from the pulse generator to the soil; and

a portable power source for powering the pulse generator,

wherein a pulsed electric field is generated in response to said conducting of the voltage pulses to the soil, the pulsed electric field for stimulating generation of negative air ions from the plants.

2. The apparatus according to claim 1, wherein the portable device further comprises a set of particulate matter sensors for detecting particulate matter concentration.

3. The apparatus according to claim 2, wherein the pulse generator is automatically activated if the particulate matter concentration is above a predefined level.

4. The apparatus according to any one of claims 1 to 3, wherein the portable device further comprises a set of proximity sensors for detecting presence of objects proximate to the portable device.

5. The apparatus according to claim 4, wherein the pulse generator is automatically deactivated if an object is detected within a predefined distance from the proximity sensors.

6. The apparatus according to any one of claims 1 to 5, further comprising an electronic device for remotely controlling the portable device.

7. The apparatus according to claim 6, wherein the portable device comprises a wireless communication module communicable with the electronic device.

8. The apparatus according to any one of claims 1 to 7, wherein the portable power source comprises a set of batteries arranged in parallel.

9. The apparatus according to any one of claims 1 to 8, wherein the plants belong to one or more plant species in the group consisting of: *Andrographis paniculata*, *Ilex aquifolium*, *Ficus lyrata*, *Euphorbia flanaganii*, *Codiaeum variegatum*, *Dracaena surculosa*, *Dracaena reflexa*, and *Bromelia agavifolia*.

10. The apparatus according to any one of claims 1 to 8, wherein the plants belong to one or more plant species in the group consisting of: *Acalypha hispida*, *Codiaeum variegatum*, *Dendrolobium umbellatum*, *Desmodium chinensis*, *Epipremnum aureum*, *Euphorbia flanaganii*, *Ficus elastica*, *Hibiscus mutabilis*, *Philodendron bipinnatifidum*, and *Sansevieria trifasciata*.

11. A portable device for use with plants to generate negative air ions from the plants, the portable device comprising:

a pulse generator for generating voltage pulses from an internal operating frequency of the pulse generator ranging from 18 kHz to 48 kHz, the voltage pulses having an output pulse frequency ranging from 5 kHz to 40 kHz and an output voltage ranging from 1 kV to 40 kV;

a pulse probe for coupling the pulse generator to the plants, the pulse probe for conducting the voltage pulses to the plants; and

a portable power source for powering the pulse generator,

wherein a pulsed electric field is generated in response to said conducting of the voltage pulses to the plants, the pulsed electric field for stimulating generation of negative air ions from the plants.

12. The portable device according to claim 11, further comprising a set of particulate matter sensors for detecting particulate matter concentration.

13. The portable device according to claim 12, wherein the pulse generator is automatically activated if the particulate matter concentration is above a predefined level.

14. The portable device according to any one of claims 11 to 13, further comprising a set of proximity sensors for detecting presence of objects proximate to the portable device.

15. The portable device according to claim 14, wherein the pulse generator is automatically deactivated if an object is detected within a predefined distance from the proximity sensors.

16. The portable device according to any one of claims 11 to 15, further comprising a switch for activating and deactivating the pulse generator.

17. The portable device according to claim 16, further comprising a wireless communication module connected to the switch and communicable with an electronic device, the electronic device configured for remotely activating and deactivating the pulse generator.

18. The portable device according to any one of claims 11 to 17, wherein the portable power source comprises a set of batteries arranged in parallel.

19. A method of using a portable device with plants to generate negative air ions from the plants, the method comprising:

coupling a pulse probe of the portable device to the plants, the pulse probe for coupling the plants to a pulse generator of the portable device and for conducting voltage pulses from the pulse generator to the plants;

powering the pulse generator with a portable power source; and

activating the pulse generator for generating voltage pulses from an internal operating frequency of the pulse generator ranging from 18 kHz to 48 kHz, the voltage pulses having an output pulse frequency ranging from 5 kHz to 40 kHz and an output voltage ranging from 1 kV to 40 kV;

generating a pulsed electric field in response to said conducting of the voltage pulses to the plants; and

stimulating generation of negative air ions from the plants using the pulsed electric field.