solution 52.

## SUMMARY

[0004a] In accordance with an aspect, there is provided a plant growth promoter comprising:

culture solution for cultivating a plant;

a container for placing roots of the plant in the culture solution;

a circulator for circulating the culture solution;

a power supply for applying a voltage;

a plurality of pairs of plate electrodes disposed opposite to each other for applying the voltage to the roots of the plant by the power supply in the culture solution; and

a controller that controls applying of the voltage,

wherein the plurality of pairs of plate electrodes are disposed in a direction of water flow in which the culture solution circulates by the circulator, and apply an electric field in the direction of water flow in which the culture solution circulates by the circulator while sequentially changing an application area.

[0004b] In accordance with an aspect, there is provided a plant growth promoter comprising:

culture solution for cultivating a plant;

a container for placing roots of the plant in the culture solution;

a circulator for circulating the culture solution;

a power supply for applying a voltage;

fixed plates disposed opposite to each other for applying the voltage to the roots of the plant by the power supply in the culture solution;

a controller that controls applying of the voltage;

an electrode for applying an electric field; and

an electrode moving mechanism that moves the electrode in an electrode moving direction parallel to a direction of water flow in which the culture solution circulates,

wherein the fixed plate has conductivity of 0.5 times or more conductivity of the culture solution, and

the electrode is disposed on the side opposite to the roots of the plant with respect to the fixed plate, and applies an electric field in the direction of water flow in which the culture solution circulates by the circulator while sequentially changing an application area.

[0005] The plant growth promoter according to one embodiment of the disclosure includes a container for placing the roots of a plant in culture solution for cultivating the plant, a circulator for circulating the culture solution, a power supply for applying a voltage, at least a pair of electrodes disposed opposite to each other for applying the voltage by the power supply in the culture solution, and a voltage controller for controlling applying of the voltage. The pair of electrodes have no moving part at a part in contact with the roots of the plant, and at least one of the pair of electrodes applies a voltage in a direction of water flow in which the culture solution circulates by the circulator while sequentially changing an application area.

[0006] With this configuration, it is possible to apply an electric field with small current and low voltage without stressing the roots with scratches or breaks.

[0007] Therefore, according to the plant growth promoter according to the above aspect of the disclosure, it is possible to promote growth of the plant with a compact power supply of small current and low voltage, thereby reducing facility cost. In addition, since it is possible to narrow the space between the

electrodes, it is possible to reduce the amount of the culture solution.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a configuration diagram of a plant growth promoter of a first exemplary embodiment;

FIG. 2 is a configuration diagram of a plant growth promoter of a second exemplary embodiment;

WHAT IS CLAIMED IS:

1. A plant growth promoter comprising:

culture solution for cultivating a plant;

a container for placing roots of the plant in the culture solution;

a circulator for circulating the culture solution;

a power supply for applying a voltage;

a plurality of pairs of plate electrodes disposed opposite to each other for applying the voltage to the roots of the plant by the power supply in the culture solution; and

a controller that controls applying of the voltage,

wherein the plurality of pairs of plate electrodes are disposed in a direction of water flow in which the culture solution circulates by the circulator, and apply an electric field in the direction of water flow in which the culture solution circulates by the circulator while sequentially changing an application area.

2. A plant growth promoter comprising:

culture solution for cultivating a plant;

a container for placing roots of the plant in the culture solution;

a circulator for circulating the culture solution;

a power supply for applying a voltage;

fixed plates disposed opposite to each other for applying the voltage to the roots of the plant by the power supply in the culture solution;

a controller that controls applying of the voltage;

an electrode for applying an electric field; and

an electrode moving mechanism that moves the electrode in an electrode moving direction parallel to a direction of water flow in which the culture solution circulates,

wherein the fixed plate has conductivity of 0.5 times or more conductivity of the culture solution, and

the electrode is disposed on the side opposite to the roots of the plant with

respect to the fixed plate, and applies an electric field in the direction of water flow in which the culture solution circulates by the circulator while sequentially changing an application area.

3. The plant growth promoter according to Claim 2,

wherein the fixed plate has conductivity of twice or more conductivity of the culture solution, and

the fixed plate is divided in the direction of water flow in which the culture solution circulates by the circulator by an insulator.

4. The plant growth promoter according to Claim 2 or 3,

wherein the electrode moving mechanism is a crawler mechanism, a rotation plane of each of rollers in the crawler mechanism is perpendicular to a plane of the plate electrode, and a voltage is applied on two planes between two rollers in the crawler mechanism by the plate electrode.

5. The plant growth promoter according to Claim 1,

wherein the plate electrode is divided into a plurality of sections by an insulator, and a switch is provided between the plate electrode and the power supply.