PTL 1: Japanese Patent Application Publication No. 2005-287337

PTL 2: Japanese Patent No. 6,167,309

PTL 3: Japanese Patent Application Publication No. 2015-177768

Non-Patent Literature

[0007] NPL 1: Paul F. Morris. et. al. "Chemotropic and Contact Responses of Phytophthora sojae Hyphae to Soybean Isoflavonoids and Artificial Substrates", Plant Physiol. (1998) 117: 1171-1178

SUMMARY

[0008]

The techniques (PTLs 1 and 2 and NPL 1) described in BACKGROUND ART enable a phytopathogenic fungus to be selectively detected but requires, in a plant cultivation site, a measure taken after the detection of the pathogenic fungus, that is, growth suppression or elimination of the pathogenic fungus by application of an agricultural chemical. In this regard, the conventional techniques that have been known so far presume a pathogenic fungus from symptoms of pathogenesis caused by the pathogenic fungus and apply a chemical, or separate or identify a pathogenic fungus and then apply a chemical, to cause a situation of being incapable of preventing spread of the pathogenic fungus. Alternatively, a measure is sometimes taken, for example, by excessively applying an agricultural chemical in advance assuming pathogenesis to make farm supervising operation hard. This excessive chemical application is recognized as leading to a result of promoting further emergence of a resistant fungus, and the present situation is that disease cannot be suppressed even with efforts, showing an example of falling into reduction of harvest or abandonment of crops.

[0009]

The technique of PTL 3 has not studied about selection of an effective agricultural chemical and concentration of the agricultural chemical and employs a horizontal detecting method, which cannot be said as being efficient, for example, when the concentration of an agricultural chemical is selected.

[0010] The present invention has been made in view of such actual circumstances, and an object of the present invention is to provide a detecting apparatus capable of selectively determining whether or not a test sample contains a phytopathogenic fungus

and proposing an effective agricultural chemical against the phytopathogenic fungus and an effective concentration of the agricultural chemical before pathogenesis of fungal disease, and to provide a detecting method and a method for selecting an effective concentration of an agricultural chemical.

[0011]

As a result of an earnest study, the inventors of the present invention and others have found that a detecting apparatus configured as below can solve the above problems and further conducted the study based on the finding to complete the present invention.

[0012]

That is, a detecting apparatus related to one aspect of the present disclosure is a phytopathogenic fungus detecting apparatus comprising:

devices each including an artificial cell wall, a test sample inlet provided above the artificial cell wall, and a culture medium layer provided under the artificial cell wall; and

an observation part configured to laterally observe at least one of the culture medium layers of the devices,

wherein

the culture medium layers of the devises respectively contain different technical-grade active ingredients,

each of the culture medium layers of the devices includes a plurality of layers that each contain an agricultural chemical in a standard amount or at a diluted concentration with respect to the standard amount and are stacked in a descending order of concentration of the agricultural chemical from bottom to top, and

each of the culture medium layers of the devices further includes, as an uppermost layer, a layer containing no agricultural chemical.

[0013]

The presentdisclosure is capable of providing an apparatus and a method that are capable of selectively detecting a phytopathogenic fungus simply and safely. Further, the present invention enables an effective agricultural chemical and concentration of the agricultural chemical to be selected before pathogenesis of fungal disease. These effects not only save efforts such as wasteful spraying of an agricultural chemical or suppress excessive chemical application, but also prevent unnecessary spraying of a