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(54) Title: PLANT RESPONSE DIAGNOSIS SYSTEM FOR HIDDEN STRESS DETECTION IN SOILLESS CROPS

(57) Abstract: Abstract The present invention relates to a system for detecting hidden stress conditions in soilless cultivation systems, including rockwool, coco coir, and hydroponic cultivation systems. In soilless greenhouse production, substrate conditions may appear satisfactory with respect to moisture content, electrical conductivity (EC), drainage, and root-zone temperature, while the plant may nevertheless experience stress due to factors such as high evaporative demand, osmotic stress, root dysfunction, or non-uniform water distribution. The system receives substrate data, environmental data, and plant response data, estimates an Expected Plant Response, and compares the estimated response with the Actual Plant Response. When a significant deviation is detected, the system classifies the probable cause of stress and provides an appropriate corrective action recommendation to the user. The invention is applicable to monitoring, management, and decision-support applications in commercial greenhouses and soilless cultivation systems.

PATENT COOPERATION TREATY

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IMPORTANT NOTIFICATION

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Applicant ABEDI, SEPIDEH

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