(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/07/2025

(21) Application No.202511069171 A

(43) Publication Date : 08/08/2025

(54) Title of the invention : A PLANT TISSUE CULTURE STATION WITH LIGHT SPECTRUM MODULATION AND GROWTH PATTERN TRACKING

| | |
|---|---|
| (51) International classification | :A01H0004000000, B64C0039020000, H05B0047165000, A01G0007040000, A01G0009240000 |
| (86) International Application No<br>Filing Date | :NA<br>:NA |
| (87) International Publication No | : NA |
| (61) Patent of Addition to Application Number<br>Filing Date | :NA<br>:NA |
| (62) Divisional to Application Number<br>Filing Date | :NA<br>:NA |

(71)**Name of Applicant :**
**1)NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY**
Address of Applicant :19, Knowledge Park-II, Institutional Area, Greater Noida – 201306, Uttar Pradesh, India. ---------- ----------
**Name of Applicant : NA**
**Address of Applicant : NA**
(72)**Name of Inventor :**
**1)Dr. RASHMI MISHRA**
Address of Applicant :Department of Biotechnology, Noida Institute of Engineering & Technology, Greater Noida. Greater Noida ---------- ----------

(57) Abstract :
The present invention relates to a plant tissue culture station (100) with integrated light spectrum modulation (102) and growth pattern tracking (104). The station comprises a programmable LED array (110), multispectral cameras (112), and sensor arrays (114) connected to a control unit (108). Real-time data from growth monitoring is analyzed by a processing module (116), which adjusts light wavelengths to optimize plant growth. An environmental management system (118) maintains ideal conditions, while nutrient misting modules (136) enhance culture efficiency. This system improves micropropagation productivity and reduces manual intervention.

No. of Pages : 15 No. of Claims : 5