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(57) Abstract :
The invention relates to a smart microbial growth monitoring chamber (10) integrated with an AI-based colony counting system (20). It includes an imaging unit (30), AI analytical module (40), and automated environmental controls (11, 12) to ensure optimal microbial growth. The system captures real-time images, counts colonies (50) using deep learning algorithms, and provides predictive growth analysis. The sample carousel (60) and cloud-enabled data logging (43) enhance automation, minimize contamination, and provide accurate, reproducible microbial monitoring.

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