C-CULTURE SAVVY TRESTLE

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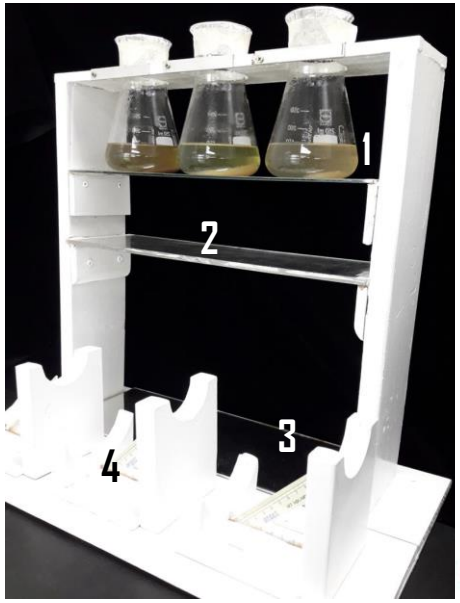
ABSTRACT

This device is developed to ease cell growth measurement in plant cell suspension cultures. Suitably used in the profusely growing cell cultures, it adopts a non-destructive approach in which the growth of cells is determined by sedimented cell volumes (SCV) after the flasks containing the cells are tilted at a fixed position. The measurement is taken based on the readings of the ruler attached to the device which has been calibrated accordingly to the respective volume of cell culture. In addition, the two-stage built-in glass and acrylic platforms are designed together to enable visual examination of bottom view of the flask for cell opacity observation. To ease the photo capturing of flask bottom view, the device is equipped with a reflective mirror which is placed at the base of the platform. It is also created to enable the measurement of three flasks at once which is suitable for simultaneous observation of three replication results. Its simplicity and convenience in data recording offer a rapid analysis of cell growth with time-saving properties. Due to its practicality and non-destructive nature, this device also offers source-saving properties in routine analysis of cell suspension culture growth. Indeed, the use of the device could confer benefits in the light of conservations in cell culture studies.

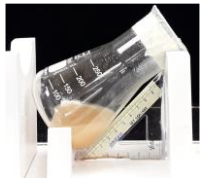
INTRODUCTION, PRODUCT DESCRIPTION / INNOVATION IN BRIEF

- Plant cell suspension culture is a sterile and closed system initiated by suspending friable calli into a sterile liquid growth medium.
- The growth of cells should be measured in a timely manner at a specific time intervals to identify distinctive cell growth phases.
- Culture harvesting and sampling are destructive in nature. This device is developed to apply the non-destructive method for cell growth measurement based on SCV and supports visual observation by considering culture opacity.



METHODOLOGY, NOVELTY & ORIGINALITY

- Cell opacity observation can be simultaneously done with less hurdle photo capturing procedure by placing the flasks on the cell culture flask platform (1) and the camera on the clear acrylic platform (2) in which the images are reflected on the mirror (3) available at the base of the device.
- Measurement is taken after the cells sedimented in a 250-ml capacity Erlenmeyer flask tilted at 60°C measuring platform (4) after 5 to 10 minutes.



- This device is designed based on the idea of getting multiple readings of SCV simultaneously and originally created to enable the measurement of three-to-go concept by conserving the cultures

"LEADING INNOVATION"

SIGNIFICANCE & USEFULNESS

- Resource conservation and time-saving properties: Allows rapid result taking and repetitive use of similar cell cultures without sacrificing the cells.
- It is useful and may benefit those in related fields of study.

SHARIAH COMPLIANCE

The innovation in developing this device does not go against Islamic principles and promotes the practices of source conservation and waste minimization.

AWARD / PUBLICATION / PATENT

Establishment of cell suspension cultures for secondary metabolites study in *Barringtonia racemosa* L. (2018). Journal of Engineering and Applied Sciences 13 (Special Issue 3), 3119-3124.