

**B-37 : A STUDY ON THE FEASIBILITY OF CALLUS AND CELL
CULTURE DEVELOPMENT (*IN VITRO*)
IN *Gossipium hirsutum* L. (COTTON)**

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In vitro culture of tissues in general refers to the growth of an organ, a tissue or a single cell on an artificial medium under aseptic conditions, in a glass or plastic vessel.

The main objective of the present research work was to obtain a callus of *Gossipium hirsutum* L., which is the common cotton plant in Sri Lanka, and to enhance its production by selecting a suitable explant, culture medium and illumination. It was also attempted to develop a potential cell culture from the callus of cotton for plant regeneration. The long term objective is the improvement of the cotton plant which is internationally considered as a crop with a high economic value.

Parts of the cotton plant such as leaf, petiole, green stem, mature seed and anthers were cultured on the basic Murashige and Skoog (1962) medium (MS), supplemented with different types and concentrations of growth regulators. They were cultured in 24 h light and 24 h dark separately.

Callus formation was observed only on leaf and mature seed cultured in light. But the morphological and histological characters of the two calluses varied. The calluses were transferred separately to basic MS medium supplemented with 2,4-D and/or BAP, to develop cell cultures. Morphological and some quantitative studies on the cell cultures enabled to select the most potential culture for plant regeneration. It was also observed that cells in the callus from leaf, had the ability to divide. Such cultures are important in protoplast and hybridization studies and also for regeneration of plants.