SPONTANEOUS LIGHT EMISSION FROM ALIVE COTTON CELL-HAIR

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Abstract At present work light emission was observed from apex of alive cotton cell-hair (*Tashkent-1, 108-F G. hirsutum L., C-6030, C-6524 G. barbadense L. and Turfan gusa G. herbaccum)* at difference developmental stages. To visualize light emission a replica-print method has been used to see not visible UV light. The alive cotton cell-fibers from fresh cotton boll has been detached and emerged into polymer emulsion (polymethylmethacrylate, gelatin, polyvinylpyrrolidone). After long time exposition (12h) cotton cell-fibers has been detached and produced replica on polymer substrate has been investigated under convenient optical microscope. In result we observed directed spur near apex of cell. We suppose that this spur is result polymer molecules destruction in area of light emission from end point of cotton cell.

It was shown that at early developmental stage cotton initiation and elongation there is no luminescence from cell. But at the next elongation period (10 day post anthesis DPA) we observed luminescence from many of the cells under microscope. Comparison with cellulose deposition and fiber elongation dynamic shows that maximal luminescence intensity corresponds to maximal rate of cell elongation and cellulose deposition (20–30 DPA). It means that cotton fiber luminescence is connected with physiological processes cotton fiber growth and development.

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