

**MULTI-CELLED FIBERS:
MODEL OF FIBER GROWTH**
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Abstract

Multi-celled fibers of cultured ovules of *Gossypium hirsutum*, cultivar, MD51 ne were used to test the hypothesis that fiber growth occurs exclusively at the tip. Each cell of multi-celled fibers has a nucleus and the number of cells per fiber range from 2 to more than 8. The data, given as regression curves, express the relative length of the tip cell of a given fiber as a function of total fiber cell length. The expected result, if the hypothesis were correct, would be regression curves with positive slopes. The results show, however, that growth of 2- and 3-celled fibers is random producing regression curves with slopes of zero. Fibers with 4 or more cells, on the other hand, have tips cells that grow more slowly than the other cells of the fiber. The regression curve, in this case, has a slight but significant negative slope. Finally, neither IAA nor GA₃ (final concentration 2 μM each), given separately or together, alters the growth pattern of 2- or 3-celled fibers.

These results do not support the hypothesis that fiber cells grow mostly at the tip. They show that the growth of multi-celled fibers occurs randomly along their linear axis.

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