

Abstract Submitted
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The Effect of Radiation on Phaseolus vulgaris and Aerogel¹

STEPHANIE DURHAM, DEREK BOYLAN, George C. Marshall High School — Radiation affects human life in disparately subtle and dramatic ways. For instance, nuclear reactions in the Sun produce light and heat that are essential for human existence, while recent research implies that the flux of cosmic ray particles may also have an impact on humans' daily lives. According to the EPA the average American receives 310 mrems of radiation per year, well under a total dose of 50,000 mrems and higher doses that cause symptoms ranging from nausea to death. However, scientists hypothesize that exposure to low doses of ionizing radiation (< 1000 mrems) may produce beneficial effects in organisms. Thus the effect of low doses of alpha, beta, and gamma radiation (12 doses ranging from 0.04 mrems of alpha radiation to 17 mrems of gamma radiation) on *Phaseolus vulgaris* was tested. The same radiation was also tested on the performance of aerogel, a material used in particle detectors. Aerogel will be used in experiments at the 12 GeV Jefferson Laboratory and has been previously observed to change its optical characteristics after being used in experiments. To determine the level of cosmic ray flux and possible contribution to our experiments a detector was created using scintillator material and 2-inch phototubes. Results from our experiments will be presented.

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