

E-CIGARETTES TOXICITY TO A549 CELLS

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E-cigarettes which are advertised as a healthy alternative to traditional smoking have recently become a significant area of research and debate. In this study, we examined the effects of e-cigarette smoke on cultured alveolar epithelial cells (A549 cell line). Smoke extract (CSE) was prepared using four different flavours of liquids. The smoke was passed through culture media using a low-pressure vacuum pump, and the medium was then sterilized and immediately used for cell culture. The cells were incubated in a smoke-modified medium for 24 hours, and cell viability (MTT), oxidative stress markers (dichlorofluorescein fluorescence and superoxide dismutase (SOD) activity), as well as toxicity and proliferation, were assessed using flow cytometry. Our findings indicate that e-cigarette smoke affects intracellular redox balance but does not activate superoxide dismutase (SOD) and oxidative stress. In contrast, discernible changes in morphology and proliferation of cells exposed to e-cigarette flavours were evident. The outcomes of MTT assays and toxicity tests evidence only slight changes between particular flavours. Our data point to the acute toxicity of traditional smoke and subtle biochemical changes induced by e-cigarettes, however, further study is required to develop new cell-based toxicity, time-dependent toxicity and bridge the gap between preclinical research and clinical algorithms.