

EVALUATION OF THE PROFILE OF CHEMICAL SUBSTANCES PRESENT IN ELECTRONIC CIGARETTES AND ASSESSMENT OF TOXIC EFFECTS ON HUMAN LUNG FIBROBLAST CELL CULTURES

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INTRODUCTION: Smoking is a serious public health problem in Brazil, and the use of electronic cigarettes is directly related to this problem today, even though they have not been legalised for commercial sale. The number of users is growing exponentially due to the increasing variety of options and methods of use that appeal to consumers. Due to a lack of research and scientific support, public health authorities are challenged to make informed decisions on this issue. Therefore, this study aimed to evaluate some of the potential effects of electronic cigarettes by analyzing the composition of device refills (e-liquids) and their *in vitro* cytotoxic effects on human lung fibroblast cells (MRC-5). **METHODOLOGY:** E-liquid samples obtained through anonymous donations were analyzed by gas chromatography followed by mass spectrometry (GC-MS) to identify the qualitative and quantitative (nicotine) composition of the compounds present and compare them with the values reported on the labels. A cytotoxicity assay was then performed using the MTT method to assess cell viability after treatment with the samples. **RESULTS:** The results showed discrepancies between the nicotine levels declared on the packaging and those found in the analyses, in addition to the presence of toxic substances unsuitable for inhalation. The cytotoxicity was more pronounced in the menthol-flavored tobacco sample, which contained higher levels of flavorings identified as the main contributors to toxicity. **CONCLUSION:** It is concluded that the use of electronic cigarettes poses several health risks, exacerbated by the lack of regulation. Thus, the results presented here can contribute to and reinforce the need for strict regulation and quality control of these devices, as well as the importance of ongoing studies to support public policies.

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