

EVALUATION OF THE EFFECTS OF RESVERATROL IN REDUCING CIGARETTE- INDUCED OXIDATIVE STRESS AND INFLAMMATION IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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INTRODUCTION

Cigarette smoke is a toxic agent that causes airway inflammation, oxidative stress and a decline in lung function, leading to Chronic Obstructive Pulmonary Disease. Resveratrol is an antioxidant that can be found in various plants and acts by protecting the body against oxidative stress, fighting inflammation and preventing cardiovascular diseases and even some types of cancer.

OBJECTIVE

The aim of this study was to evaluate the effects of resveratrol in reducing oxidative stress and inflammation induced by cigarette smoke in alveolar macrophage cells (J774A.1) *in vitro*.

METHODOLOGY

J774-A1 alveolar macrophages derived from Balb/c mice were cultured in a greenhouse and subsequently exposed to different concentrations of cigarette smoke extract and Resveratrol. Cell viability was assessed by resazurin assay, reactive oxygen species (ROS) production was measured with dichlorofluorescein, and nitric oxide (NO) production was assessed by the Griess method.

RESULTS

Resveratrol at concentrations of 25 μM and 50 μM significantly reduced the generation of ROS and NO induced by different concentrations of smoke extract in J774A.1 macrophages. Resveratrol did not interfere with cell viability even when used in high concentrations.

CONCLUSION

Resveratrol showed potential to reduce oxidative stress and inflammation induced by cigarette smoke in J774A.1 macrophages, indicating its viability as a therapeutic agent to mitigate the effects of smoking. These in vitro results suggest the need for in vivo studies for clinical applications in the treatment of smoking-related diseases.