INTRODUCTION AND OBJECTIVES: The lycopene is a known antioxidant carotenoid properties, quenching singlet oxygen, principally. This work aims to evaluate the effect of lycopene in reducing the redox imbalance and inflammation induced by cigarette smoke. MATERIALS AND METHODS: This project was approved by Animal Ethics Committee of Federal University of Ouro Preto-MG (#2014/05). Forty-nine mice (C57BL/6) were divided in 7 groups: exposed to ambient air (CG), a group which received 200 uL of sunflower oil by orogastric gavage (OG), groups treated with lycopene 25 (LYG25) or 50 (LYG50) mg/kg/day diluted in sunflower oil, a group exposed to cigarette smoke (CS), (12 cig., 3 times a day), and groups treated with lycopene 25 or 50 mg/ kg/ day (LYG25+CS and LYG50+CS) plus CS for 5 days. Mice were euthanized and the lung tissue were submitted to lipid peroxidation analysis, antioxidant enzymes activities (catalase (CAT), superoxide dismutase (SOD)) and inflammation biomarkers, as TNF-alpha, IFN-gamma and IL-10. One-way ANOVA followed by the Bonferroni’s post-test and the Kruskal–Wallis test followed by the Dunns post-test were used for statistical analyses. RESULTS AND CONCLUSIONS: The analysis of lipid peroxidation showed an increase in CS compared to CG. There was a decrease in LYG25, LYG50, LIG25+CS, and LIG50+CS compared with CS. The CAT activity increased in CS compared to CG and OG. There was a decrease in LYG25,
LYG50, LYG25+CS and LYG50+CS in relation to CS. However, SOD activity decreased in the CS compared with CG. Regarding the lung inflammation, the levels of TNF-alpha, IFN-gamma and IL-10 increased in CS compared to CG and OG. There was a reduction in the levels of TNF-alpha, IFN-gamma and IL-10 in LYG25+CS and CS+LYG50 compared to CS. **CONCLUSION:** The results together showed the role of lycopene as an antioxidant and anti-inflammatory agent in our experimental short-term model for cigarette smoke exposure.

**KEYWORDS:** Lycopene; Cigarette Smoke; Redox Imbalance; Inflammation