

PP59. The effects of Scots pine (*Pinus sylvestris* L.) essential oil in an endotoxin-induced acute airway inflammation mouse model

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Keywords: Scots pine, essential oil, airway inflammation, LPS, mouse model

Inflammatory lung diseases affect a large population at every age worldwide. Essential oils (EOs) can easily reach the respiratory tract via inhalation due to their volatility. The antiinflammatory effect of EOs is poorly studied and there are only a few *in vivo* data. Therefore, we investigated the chemical composition and effects of Scots pine EO in the endotoxin-induced acute airway inflammation model in mice. The EO was selected on the basis of its potent antibacterial activity.

The chemical composition of the EO was determined by gas chromatography-mass spectrometry. Airway inflammation was evoked by 100 µg intratracheal endotoxin administration (*Escherichia coli* 083 lipopolysaccharide: LPS) to female C57BL/6 mice (n=8/group). There were three 30-min long inhalation sessions of the EO for during the 24-h period of the experiments. Airway function was measured by unrestrained whole-body plethysmography in conscious, awake animals. Myeloperoxidase (MPO) activity was determined by spectrophotometry from lung homogenates, while the semiquantitative histopathological score was evaluated from hematoxylin-eosin stained lung sections.

α-Pinene (39.4%) was the main component of the tested Scots pine oil. The inhalation of the EO significantly reduced peak inspiratory and expiratory flow and LPS-induced airway hyperresponsiveness compared to the paraffin oil-treated controls. Scots pine oil significantly reduced the perivascular edema formation. However, the EO significantly increased MPO activity. Scots pine oil or its components may be considered as a potential adjuvant in the treatment of respiratory symptoms.

Acknowledgments: KTIA_NAP_13-2014-0022, GINOP-2.3.2-15-2016-00050 PEPSYS, GINOP-2.3.2 STAYALIVE, EFOP-3.6.2-16-2017-00008

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