

Abstract

# Investigation of Antiinflammatory Effects of *Origanum majorana* L. Extract in LPS-Induced Beas-2b and A549 Cells <sup>†</sup>

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**Abstract:** *Origanum majorana* (OM) L. belongs to Lamiaceae family and has antiinflammatory effects. The common feature of the causes of lung cancer is the coexistence of inflammatory events. The aim of this study was to investigate the anti-inflammatory activity of OM in non-small cell lung cancer (A549) and human bronchial epithelial cell line (Beas-2b). The effects of OM extract were investigated by using MTT analysis and xCELLigence real-time cell analysis. The major compounds were identified by high pressure liquid chromatography with diode array detection coupled with electrospray ion trap mass spectrometry (LC-DAD-ESI-MS). In this study, LPS was administered to A549 and Beas-2b cells and inflammatory responses were triggered. Antiinflammatory activity of OM extract was evaluated by Western blot method COX-2 expression in both cell lines with LPS induced inflammation. OM cytotoxic activity in the Beas-2b cells triggered inflammation by both alone and with LPS, whereas cytotoxicity in the A549 cells showed at high concentrations. It was concluded that OM increased the expression of COX-2 in its use alone, but it showed antioxidative effect by suppressing COX-2 as a concentration dependent inhibition in cases where inflammation was triggered by LPS. On the basis of the composition of these active extracts it is apparent that flavonoids, i.e. apigenin, luteolin, and their glycoside derivatives, along with phenolic acids, i.e. rosmarinic acid and salvianolic acids, are the major principles of the OM extract. It was concluded that it seems to be promising to investigate the anticancer activity of this compound which has antiinflammatory activity.

**Keywords:** A549; Beas-2b; *Origanum majorana* L.; xCELLigence; LPS; LC-DAD-ESI-MS



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