Abstract

Background: Herbal products constitute a significant source of raw materials for both modern pharmaceuticals and traditional medicine. *Salvia fruticosa Mil.* is one of the most seasoned conventional plants utilized by Palestinians for the treatment of mouth cankers, upper respiratory framework diseases, flu, and skin diseases. Therefore, the present experimental work was intended to characterize and compare the chemical compositions of the essential oils (EO) of *S. fruticosa* gathered from three different regions of Palestine and to estimate and correlate their antiadhesion and cytotoxic effects.

Methods: The EOs were separated utilizing a Clevenger apparatus, and the chemical components were recognized utilizing gas chromatography-mass spectrometry (GC-MS), whereas the antiadhesive property was conducted against *Klebsiella pneumoniae* on human epithelial colorectal adenocarcinoma cells (Caco-2). Also, the cytotoxicity of EOs was determined against HeLa (cervical cancer) and Caco-2 using a colorimetric tetrazolium-based (MTT) assay.

Results: The major components of Hebron *S. fruticosa* EO were eucalyptol (22.37%), 3-carene (11.61%), (-)-camphor (10.77%) and L-β-pinene (9.90%). While the major *S. fruticosa* EO chemical composition which collected from Salfit region were eucalyptol (22.67%), (-)-camphor (9.97%), 4,7-dimethyl-4,4a,5,6-tetrahydrocyclopenta[c]pyran-1,3-dione (8.67%) and caryophyllene (8.36%). Moreover, the major components of Umm Al-Fahm *S. fruticosa* EO were eucalyptol (25.9%), (-)-camphor (17%) and thujone (10.4%). All of *S. fruticosa* EOs used in the current experiment showed the ability to decrease *K. pneumoniae* adhesion to Caco-2 cells and the maximum percent of antiadhesion was for