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Comparison of extraction yields, antioxidant, antimicrobial activity and concentration of main components of *Olea europaea* leaf samples at different seasons and of different areas in Palestine

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Abstract : *Olea europaea* is widely cultivated tree for oil production in the Mediterranean area. The benefits of olive leaves refer to their vital polyphenols components. In this study, the optimum way for the extraction of olive leaves using Soxhlet extractor and various concentrations of ethanol as solvent was examined. In order to find the effect of environmental conditions on the extraction yield and chemical composition of olive leaves, phenolic components of olive leaf extract (Oleuropein and Rutin) were analyzed area-wise and season-wise by a new and reliable RP-HPLC method. Extracts were screened for two pharmacological effects, namely antioxidant and antimicrobial activities. Thus, olive leaves were collected from three different areas in Palestine [south (Hebron), center (Beit Jala) and north (Tulkarm)] at two maturation stages [June 2014 (season 1) and October 2014 (season 2)]. Results showed that 75% EtOH was the best extracting solvent and season 2 gave higher yields of extraction. Beit Jala samples showed higher extracts than the two other areas with higher concentrations of Oleuropein, while Rutin was not detectable. Antioxidant activity was higher for untreated samples and samples of Hebron and Beit Jala had similar values. All samples showed good antimicrobial activity against Gram positive bacteria, while no inhibition was detected against Gram negative bacteria.

Keywords: Olive leaf, Soxhlet extraction, Oleuropein, Rutin, antimicrobial activity.

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