GC/MS Analysis and In vitro Anti-microbial Activity of 
the Essential Oils Isolated from the Stems of Three Pistacia 
Species growing in Egypt

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Abstract

The aim of this study is to examine the chemical composition, the antimicrobial 
activity and the minimum inhibitory concentration (MIC) of the hydrodistillated 
essential oils obtained from the fresh stems of Pistacia lentiscus, Pistacia khinjuk 
and Pistacia chinensis (Family Anacardieace). The percentage of essential oil in 
Pistacia chinensis, Pistacia khinjuk and Pistacia lentiscus were determined to be 
0.095%, 0.14% and 0.12% respectively. GC/MS analysis of three essential oils 
resulted in identification of 40, 40, 39 different compounds, representing 
99.94%, 99.9% and 99.88% of the total oil respectively. The major compounds in 
Pistacia lentiscus were α-pinene (56.5%), Δ-3-carene (38.57%) followed by 
limonene (2.08%), in Pistacia khinjuk the major compounds were α-myrcene 
(69.56%), α-pinene (11.64%) followed by trans-caryophyllene (10.31%) and 
limonene (5.5%) and in Pistacia chinensis the dominant compounds were α-pinene 
(81.75%) and sabinene (11.34%). The antimicrobial effect of these essential oils 
against selected strains of Gram positive, Gram negative, and fungi revealed that 
Pistacia khinjuk has strong antibacterial activity on Enterococcus fecalis Gram 
positive and strong antifungal activity on Aspergillus niger while Pistacia chinensis 
has strong activity on Enterococcus fecalis and Staphylococcus aureus Gram 
positive and strong antifungal activity on Candida glabrata, however, Pistacia 
lentiscus showed weak antibacterial activity and no antifungal activity. The 
minimum inhibitory concentration of Pistacia khinjuk against Enterococcus fecalis 
and Aspergillus niger

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