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J Pharm Drug Deliv Res 2016, 5:4(Suppl)
http://dx.doi.org/10.4172/2325-9604.C1.012

5th Annual European Pharma Congress

July 18-20, 2016 Berlin, Germany

Chemical composition of essential oils of ripe and unripe berries and leaves of *Juniperus phoenicea* L and determination of their antimicrobial activities

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In the present study, evaluation of the essential oil (EO) of the aerial parts (leaves, ripe berries and unripe berries) of *Juniperus phoenicea* L. collected from Eastern Morocco, and comparison of their chemical composition and their antibacterial and antifungal activities were carried out. The average yields of EOs obtained was varied; the unripe berries sample was the highest. The EOs components were analyzed and identified chromatographically by using (GC and GC/MS). Forty one compounds were identified in the leaves oil, while 34 and 28 compounds were identified in unripe and ripe berries, respectively. *J. phoenicea* is dominated by the presence of the major compound α-pinene only in leaves and unripe berries with 34.36% and 33.7%, respectively, while the major compound in the ripe berries was β-pinene oxide (18.17%). The antibacterial and antifungal activities of the EOs of *J. phoenicea* were evaluated against four ATTC types of bacterial strains, (*Bacillus subtilis, Escherichia coli, Staphylococcus aureus* and *Micrococcus luteus*) and seven ATCC types of fungal strains in which three are molds (*Asper gillusniger, Penicillium digitatum* and *Penicillium expansum*), the others are fungal species (*Gloeophyllum trabeum*, *Coniophoraputeana, Poria placent*a and *Coriolus versicolor*). The minimum inhibitory concentration was determined and the results obtained led to a significant inhibitory effect against most of studied microorganisms. The results showed that, EOs inhibited the growth of all bacterial strains at highest concentration (1/100 v/v) from all samples, and the most effective EO was obtained from the ripe berries. Additionally, the four wood rot fungi were sensitive to the EO from all samples at highest concentration (1/100 v/v), and only EO from ripe berries has antifungal activity even at low concentration (1/1000 v/v). The sensitivity was appeared also in all molds in case of ripe berries and leaves EOs at high concentration (1/100 v/v), while unripe berries EO inhibited the growth of *Penicillium expansum* only, the other molds were resistant.

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Morphine aggravates cisplatin-induced nephrotoxicity and oxidative stress in rats

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Cisplatin is a widely used cancer therapy agent, causes major side effects in normal tissues, particularly nephrotoxicity. Morphine is extensively used for the clinical management of cancer pain. In addition to analgesic effect, various studies suggest that morphine might possess prominent immunomodulatory and antioxidant properties. In this study, we investigated the morphine effects on nephrotoxicity induced by cisplatin in rats. An i.p single dose of cisplatin(5mg/kg) was used for nephrotoxicity induction . For providing steady state plasma levels of morphine and naltrexone, an opioid antagonist, the daily doses of 5 mg/ kg and 20 mg/ kg respectively were employed for 5 days. Cisplatin- induced nephrotoxicity characterized by a significant increase in plasma urea and creatinine levels in addition to severe alterations in kidney tissue architecture. Glutathione (GSH) concentration and superoxide dismutase activity as well as TNF-α and IL-1β levels of renal tissue in cisplatin-treated rats were significantly different compared with control group. Treatment with morphine markedly aggravated the deleterious effects of cisplatin on both biochemical and histopathological parameters, whereas naltrexone masked the detrimental effects of morphine in naltrexone + morphine + cisplatin group. Morphine or naltrexone alone had no effect on the mentioned parameters. Our findings indicate that morphine worsened cisplatin-induced renal damage in rats, suggesting that its toxic effects should be kept in mind in cancer patients receiving cisplatin chemotherapy. Furthermore, our results suggest that other opioid analgesic should also be used more cautiously owing to the role of opioid receptors in mediating these adverse effects.

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