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Antibacterial Activities, Chemical Constitutes and Acute Toxicity of Peganum Harmala L. Essential Oil

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Abstract : Natural products are still major sources of innovative therapeutic agents for various conditions, including infectious diseases. Peganum harmala L. oil had wide range uses as traditional medicinal plants. The current study was designed to evaluate the antibacterial activity of P. harmala essential oil. The chemical constitutes and toxicity of these oils was also determined to obtain further information on the correlation between the chemical contents and antibacterial activity. The antibacterial effect of the essential oils of P. harmala oil was studied against some foodborne pathogenic bacteria species. The oil of plant was subjected to gas chromatography-mass spectrometry (GC/MS). The impact of oils administration on the change in rate of weight gain and complete blood picture in hamsters were investigated. P. harmala oil had strong antibacterial effect against bacterial species especially at minimum inhibitory concentration (MIC) less than 75.0 µg/ml. From the oil of P. harmala, forty one compounds were identified, and the major constituent was 1-hexyl-2-nitrocyclohexane (9.07%). Acute toxicity test was performed on hamsters and showed complete survival after 14 days, and there were no toxicity symptoms occurred. This study demonstrated that these essential oils seemed to be destitute of toxic effect which could compromise the medicinal use of these plants in folk medicine.

Keywords : analysis mass spectrometry, antibacterial activities, acute toxicity, chemical constitutes, gas chromatography, weight gain, Peganum harmala
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