CHEMICAL CHARACTERIZATIONAND BIOLOGICAL ACTIVITY OF THE ESSENTIAL OIL DERIVED FROM ACHILLEAKELLALENSIS AGAINST TWO MEDICALLY IMPORTANT VECTORS

[1]ALIREZASANEI-DEHKORDI, [2]MOUSSA SOLEIMANI-AHMADI, [3]ABDOLHOSSEIN MADANI, [4]GOLSOOM RASHID

[1,4]Department of Medical Entomology and Vector Control, Faculty of Health, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[1,2]Infectious and Tropical Diseases Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[3]Social Determinants in Health Promotion Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
E-mail: [1]alireza.sanee@gmail.com, [1]alireza.sanei@hums.ac.ir

Abstract - Mosquitoes play a predominant role in the transmission of parasitic and viral diseases of immense importance for public health. Currently, Synthetic insecticide, the most commonly used compoundsfor the control of larval mosquitoes. Nevertheless, the continuous andindiscriminate use of synthetic larvicides has also induced adverse effects.Essential oilsobtained from plants can be an alternative to synthetic insecticides because they are highly effective, safe, and environmentally acceptable. In the current study, an attempt was made to assessthe larvicidalpropertyofthe essential oil of an indigenous plant,Achilleakellalensis against Anopheles stephensi, and Culexquinnquefaciatus. In addition, the chemical composition of essential oil was determined andidentified byGas Chromatography (GC) andMass Spectrometry (MS)analysis.Essential oil of A.kellalensis exerted significant larvicidalactivity against An. stephensi and Cx. quinquefasciatus, afterexposure for 24 h.The $LC_{50}$and LC_{90}values of A.kellalensisagainst An. stephensilarvae were 35.42 and 103.13 ppm, andfor Cx. quinquefasciatus were 21.79 and 54.88 ppm, respectively.In A.kellalensis, 36 components were identified, representing 97.26% of the oil, of which β-Ocimene (17.72 %), Linalyl acetate (15.98 %), Linalool (10.83 %) and α-Pinene (10.3 %) were found to bethe major constituents. Our results suggested that both examined oilsmay beexplored as a natural larvicideto control vector mosquito species.

Keywords - Achilleakellalensis, GC-MS, Larvicideactivity, Anopheles stephensi, Culexquinquefasciatus