Research Article

Journal of Chemistry Letters
journal homepage: www.jchemlett.com
ISSN (online): 2717-1892

Chemical composition of the Essential oil from Aerial parts of Achillea filipendulina Lam. From Iran

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Iran, Kordestan, edare amozesh va parvaresh ziviyeh

ARTICLE INFO

Article history:
Received
Received in revised form
Accepted
Available online

Keywords:
essential oil,Achillea filipendula, chrysanthenyl acetate, 1,8 – Cineole,chemical composition

ABSTRACT

The hydrodistillation volatiles separated from flowers, leaves an steams of *Achillea filipendula* Lam, a growing wild plant collected in the kurdistan province of Iran were investigated. The essential oil of the plant were. The hydrodistillation Volatiles Component Separated From Flowers, Leaves and stems of *Achilla Filipendula* Lam. Were analyzed by GC and GC/MS. The main Components in the flower Oil were Alpha-terpineol(11.2%) chrySanthenyl acetate(10.6%) gamma–terpinene(8.6%).The main components in the leaves oil were 1,8 – Cineole (30%) chrysanthenyl acetate (18.7%) and Bornyl acetate(14%). The main constituents in the stem oil were Borneol (18%), 1,8- cineole (14.4%) Chrysathenyl acetate (12.4%) and Bornyl acetate (11.3%).

1. Introduction

Achillea (Composite) comprises 115 species, which are mainly distributed in Europe, Asia and North Africa and also is introduced plant in the New World[1]. The flora of Iran comprises19 species of *Achillea* of which 7 are endemic[2,3]. various part of different species of the genus *Achillea* are widely used in folk medicine due to numerous pharmacological properties, such as antimicrobial, antiinflammatory, antiallergic and antioxidant activities[4,5] the essential oils of the *Achillea filipendula* showed high antibacterial activity against seven gram positive and gram negative bacteria[6]. Pervious chemical investigation on different species of with Iranian Origin *Achillea* have been shown also the presence of sesquiterpene lactones and essential oils[7-13] . In this investigation the essential oil of *Achilla Filipendula* Lam., growing with Iranian Origin obtained and analysis and reported

2. Results and Discussion

The percentage composition of the oils is given in Table I in order of their elutionfrom the DB- 5 column.

Twenty- nine compounds were identified in stem oil of *Achillea filipendula* representing 93.8% of the oil composition. The main compounds were borneol(17.9%), α-pinene(14.4%), 1,8-cineole(14.42%) and chrysanthenyl acetate (12.42%). other notable constituents was spthulenol(5.88%).

In the leaf oil, twenty compounds were identified representing 98.27% of the oil Composition. The main compounds were 1, 8-cineole (29.89%), α- pinene (12.0%), chrysanthenyl acetate (16.75%), bornyl acetate(13.7%), α- pinene (8.38%) and Terpinen- 4 - ol (5.74%) were found in large amounts. Twenty- tree compounds were identified in the flower oil representing 93.8% of the oil composition. The main compounds were α-terpineol(14.56%), chrysanthenyl acetate(13.44%), γ-terpinene(11.17%), bornyl acetate(10.0%), α- camphenolenal(7.62%) and α-pinene (7.44%).

as can be seen from the above information, the oils from stems, leaves and flowers of *Achillea filipendula* are rich in regard to monoterpenes (80.084%, 97.39% and 84.702%, respectively), While the oils from stems, leaves and flowers of *Achillea filipendula* are poor In regard to sesqueterpine(8.915%, 0.345% and 8.138%, respectively).

the some earlier works have been reported on the essential oils of various *Achillea* species.

The main component of *Achillea cretica* L. essential oil were caryophylladienol-II (13.4%), β-maaliene (6.1%),

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