

Chemical Constituents of *T. aurilactum*, *R. vesicarius*, *P. orientalis*, *P. somalensis* and *A. abyssinica* Grown in Saudi Arabia

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Summary: The volatile oils of five plants. *Tripleurospermum aurilactum*, *Rumex vesicarius*, *Pulicaria orientalis*, *P. somalensis* and *Artemisia abyssinica* were collected using steam distillation and their constituents were analysed by GC/MS. The first two plants are being studied for the first time. In addition, a further study on the chemical constituents of the third one is reported.

Introduction

In continuation of our interest in the chemical components of plants grown in Saudi Arabia [1-3], we report here a detailed GC/MS study of the volatile oils of five plants. These plants are *Tripleurospermum aurilactum*, *Rumex vesicarius*, *Pulicaria orientalis*, *P. somalensis* and *Artemisia abyssinica*. With the exception of the plant *Rumex vesicarius* (Polygonaceae), all these plants belong to the family Compositae (Asteraceae). Furthermore, three compounds were isolated and identified from the extracts of *P. orientalis*. It is worth mentioning here that, to the best of our knowledge, the first two plants have never been studied in respect to their chemical constituents or their volatile oils except some preliminary phytochemical and pharmacological testing of the volatile oil of *T. aurilactum* [4].

Results and Discussion

Tripleurospermum aurilactum

This plant gave about 0.5% of the steam volatile oil which has a light yellow colour with a light fragrant smell. The plant itself has a pepper like taste. Ten components of this oil were identified through GC/MS analysis by matching their spectra with standard spectra in the data bank system and with literature reports [5,6]. These components include monoterpenes, sesquiterpenes, fatty acids, and others (Table-1). In addition, six more components were identified through their molecular ions as monoterpenes, sesquiterpenes, and others. It can also be judged from the GC/MS that the major constituents of the volatile oil of *T.*

Table-1: Components of the volatile oils of *T. aurilactum* and *R. vesicarius*

| <i>T. aurilactum</i> | | <i>R. vesicarius</i> | |
|---|-----|---|-----|
| Component | MW | Component | MW |
| 1. 2-Methyl-3-oxohexanoic acid, ethyl ester | 172 | 1. 2-methyl-3-oxohexanoic acid, ethyl ester | 172 |
| 2. Farnesene | 204 | 2. 2,3-Dimethylpentanol | 116 |
| 3. Nerol | 154 | 3. Eicosylcyclohexane | 364 |
| 4. 4-Hexadecen-6-yne | 220 | 4. 4-Cyclohexyldecane | 224 |
| 5. Nerolidol | 222 | 5. 5,4-Cyclohexylundecane | 238 |
| 6. 2-(4-Methylcyclohexyl)-2-methylene ethanol | 154 | 6. 1-(Ethenyloxy) octadecane | 296 |
| 2,2,4,4,7,7-Hexamethyl | | 2,4,6-Trimethyl-nonanoic acid, | |
| 7. Octahydroindene | 208 | 7. unknown | 168 |
| 1,5,9-Trimethyl-12-(1-methylethyl)-1,5,9-cyclotetradecatriene | 178 | 8. unknown | 172 |
| 3-Tridecen-1-yne | | 9. unknown | 366 |
| 9. octadecanal | 268 | | |
| 10. 9-Eicosyne | 278 | | |
| Unknowns | | | |
| 11. Monoterpene | 172 | | |
| 12. Monoterpene | 168 | | |
| 13. Sesquiterpene | 206 | | |
| 14. Sesquiterpene | 218 | | |
| 15. Sesquiterpene | 224 | | |
| 16. miscellaneous | 336 | | |

aurilactum are the sesquiterpenes: 2 (35%), 7 (100%) and the monoterpene 6 (41%).

Rumex vesicarius

The plant studied herein yield about 0.1% of the steam volatile oil. This oil has a light brownish colour which turned to a waxi like material after separation. It almost has no smell and the plant itself has a sour taste. It turned out from the GC/MS analysis that the constituents of the oil of *R. vesicarius* are completely different from the usual pattern of the volatile oils. None of these components were mono- or sesquiterpenes which