

Novel Compounds in Lyophilized Female Camel Urine

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Abstract

The present work was done to emphasize the degraded compounds of camel urine. Lyophilized camel urine was analyzed by Gas chromatography mass spectrometry (GC-MS) Agilent 6890 GC. Eleven bioactive compounds were detected, four of these compounds have a novel structure, and these compounds are: 4-Heptanone,3-methyl, Butanoic Acid, butyl ester, Acetic Acid, (2,4,6-triethylbenzoyl)thio, Benzoic Acid, methyl ester, Propane, 2,2'-(methylenebis(oxy)bis(2-methyl-), Butane, 1,1-dibutoxy-, Pentanoic Acid, 4-oxo-, butyl ester, Benzoic Acid, butyl ester, Benzeneacetic Acid, 2-methylpropyl ester, Butylparaben. The four compounds of novel structure are: Titanium, (08-1,3,5,7-cyclooctatetraene)(05-2,4-cyclopentadien-1-yl), Nitroxidebis(1-1 dimethyleyl), 9,12,15-octadecatrienoic acid, Hepta siloxane.

Keywords: Camel urine; Novel compounds; Gas chromatography

Analytical method

Gas chromatography-Mass spectrometry (GC-MS) was performed using Agilent 6890 N network GC system interface, with a 60 m Agilent fused capillary column, DB-5 ms, 0.25 mm 1-D, 0.25 mm Film- initial temp 100°C, hold for 2 min, then programmed at 2°C/min to 300°C, isothermal temperature was held for 10 min.

Helium carrier gas, head pressure 9.30 psi, column flow 1 ml/min. injection temp 300°C EL source 230°C, total scan mode was cycled at 2 seconds. 1 ml of the given sample has been diluted with 10 ml of diethyl chloromethane (DCM), and 1 µ was injected using split less mode.

Results

Nist library was used for the identification of the compounds by comparison with published retention time of the chromatogram. Corrected areas % obtained by base line subtraction was used to calculate the percentage of the compounds within the injected amount.

GC-MS chromatogram of the dichloromethane extract of Camel urine, showed fourteen peaks indicating the presence of fourteen compounds.

Introduction

Urine is a purified sterile product of blood filtration, medically referred to as plasma ultra-filtrate made by kidneys [1]. It has been shown throughout the history of medical science to this day, that urine has profound medical uses [2].

Use of animal urine is endorsed in mainstream modern medicine. Pregnant mare urine is the source of conjugated equine estrogens and has been marketed for over fifty years as pharmaceutical brand premarin, “an estrogen treatment for menopausal and pre-menopausal women” especially postpartum-one of the most prescribed drugs in United States [1]. It was very recently discovered that adding distilled cow urine to medicaments increases their effectiveness while decreasing their side-effects, making anti-cancer, anti-tubercular drug twenty times more effective and anti-bacterial eight times more effective (on line document), “urine therapy” is a stable of Ayurveda remedy [2,3].

Clinical studies on camel urine were recorded [4-10]. The results of these experiments proved that camel urine consists of many bioactive complex compounds, which can acts against bacterial, parasitic, carcinogenic agents and it has the ability to protect the liver against toxic agents [11].

Materials and Methods

Urine samples collected from natural grazing animals; then it was lyophilized using Analytical method.

Retention time	Name of compound	Molecular formula	Molecular weight	Peak area %
8.13	Titanium	C ₁₃ H ₁₃ Ti	217	1.33
8.84	4-Heptanone, 3-methyl	C ₈ H ₁₆ O	128	2.3

10.88	Butanoic Acid, butyl ester	C ₈ H ₁₆ O ₂	144	2.23
14.87	Acetic acid,(2,4,6-triethylbenzoylthio)	C ₁₅ H ₂₀ O ₃ S	280	1.9
15.03	Benzoic acid, methyl ester	C ₈ H ₈ O ₂	136	8
17.76	Propane,2,2'-(methylenebis(oxy))bis 2-methyl	C ₉ H ₂₀ O ₂	160	1.27
21.41	Butane, 1,1-dibutoxy	C ₁₂ H ₂₆ O ₂	202	26.59
21.67	Pentanoic acid, 4-oxo-,butyl ester	C ₉ H ₁₆ O ₃	172	3.12
27.12	Benzoic acid, butyl ester	C ₁₁ H ₁₄ O ₂	178	22.9
40.64	Butylparaben	C ₁₁ H ₁₄ O ₃	194	27.71
	Nitroxide bis (1-1 dimethyleyl)	C ₈ H ₁₈ NO	292	
71.73	9,12,15-Octadecatrienoic acid	C ₁₈ H ₃₀ O ₂	278	5.32
	Hepta siloxane	C ₁₆ H ₄₈ O ₆ Si ₇	533	

Table 1: Retention time, Molecular weight and formulae and Peak area % of the detected compounds.

No	Name of compound	Activity
1	4-Heptanone, 3Methyl	Anti-bacterial, Anti-fungal
2	Benzoic acid, butyl ester	Antiseptic, Anti-oxidant, Anti-cancer
3	Butylparaben	Anti-microbial
4	Nitroxid	Anti-oxidant, Anti-microbial
5	9,12,15 octadecatrienoic acid	Anti-oxidant, Anti-tumor, Anti-inflammatory
6	Pentanoic acid, 4-oxo-, butyl ester	Anti-microbial
7	Benzoic acid, methyl ester	Anti-oxidant, Anti-microbial
8	Propane,2,2-methylene bisoxy bismethyl	Anti-oxidant

9	Butanoic Acid, butyl ester	Anti-oxidant
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Table 2: Biological activity of some detected compounds.

Table 1 shows the retention time, the molecular weight and formulae and the peak area% of the detected compounds, Table 2 shows the biological activity of some detected compounds.

Figure (1-4) show the GC- MS chromatogram of the dichloromethane extract of lyophilized camel urine (Heptasiloxane), Nitroxide bis (1-1 dimethyleyl), Titanium,(08-1,3,5,7-cyclooctatetraene)(05-2,4-cyclopentadien-1-yl) and 9,12,15 octadecatrienoic acid, respectively [12].

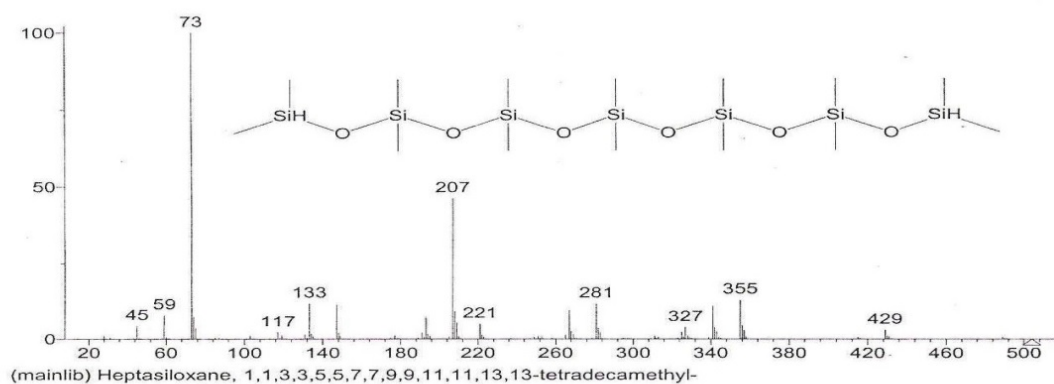


Figure 1: MS chromatogram of the dichloromethane extract of lyophilized camel urine (Heptasiloxane).

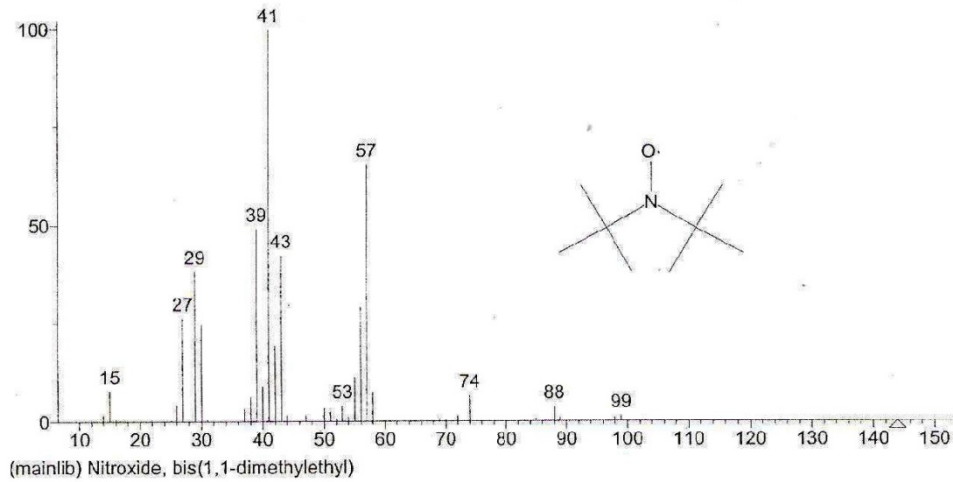


Figure 2: GC- MS chromatogram of the dichloromethane extract of lyophilized camel urine (Nitroxide bis (1-1 dimethyleyl)).

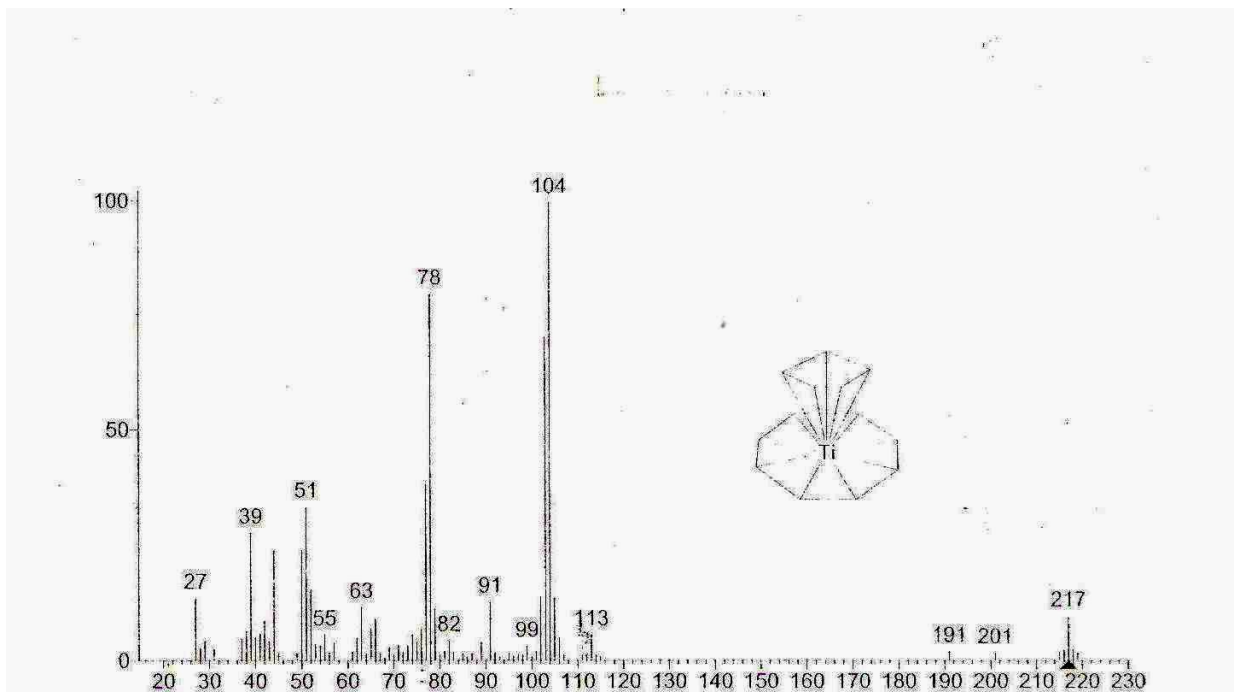


Figure 3: GC- MS chromatogram of the dichloromethane extract of lyophilized camel urine(Titanium,(08-1,3,5,7-cyclooctatetraene)(05-2,4-cyclopentadien-1-yl)).

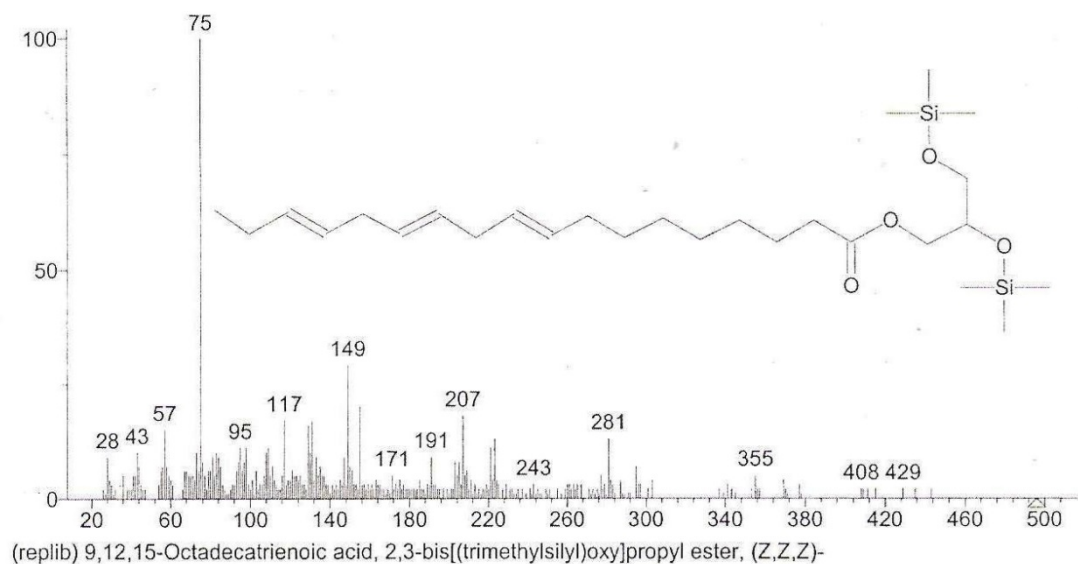


Figure 4: GC- MS chromatogram of the dichloromethane extract of lyophilized camel urine (9,12,15-octadecatrienoic).

Benzoic acid, methyl ester 1.3%, Propane-2,2-methylene bisoxy bismethyl 1.27%, Butanoic Acid, butyl ester 2.23%, Benzoic acid, butyl ester 22.9%, Nitroxid and 9,12,15 octadecatrienoic acid were found in the urine extract that have an antioxidant activity, 9,12,15 octadecatrienoic acid Butanoic acid, and Acetic acid Are have an anti-cancer effect [13].

Butanoic acid and Acetic acid also have an anti-microbial effect [13]. Benzoic acids and its esters are employed externally as antiseptics, lotions, ointments, creams and mouth washes. It is more effective as a preservative in foods and pharmaceutical products. Benzoic acid is an antiseptic but irritating, so used only externally. It is used in the treatment of burns, frostbite, chaps, cracks, erythema, pruritus, ulcers, infected dermatitis and other minor wounds [14].

4-Heptanone, 3-methyl which presented 2.3% [15], documented that, it has an anti-fungal effect.

Octadecatrienoic acid, (Z,Z,Z)- and Vitamin E which contributes the activities like antimicrobial, antioxidant anticancer, Hypercholesterolemic, Antiulcerogenic and other activities [16]. Butylparaben 27.71% was reported that, it has an anti-microbial effect [17].

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