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CHEMICAL COMPONENTS OF *CITRUS SINENSIS* ROOTS VARIETY BLOOD RED

SHASHI SHARMA[a] and MEERA[*]

Department of Chemistry, KM Government College, NARWANA – 126116 (Haryana) INDIA
[a]Department of Applied Sciences, IITT College of Engineering, KALA AMB – 173030 (H.P.) INDIA

ABSTRACT

The first chemical examination of *Citrus sinensis* roots variety blood red has afforded five known compounds which are hentriacontane, heneicosanoic acid, octacosanoic acid, euphol and 3,29-dihydroxy-24,25,26,27-tetra-norlanost-8-en-23,17-olide.

Key words: *Citrus sinensis*, Rutaceae, Hentriacontane, Heneicosanoic acid, Octacosanoic acid, Euphol, 3, 29-dihydroxy-24, 25, 26, 27-tetra-norlanost-8-en-23, 17-olide.

INTRODUCTION

Citrus sinensis (L.) belongs to Rutaceae family, and it has the commom names sweet orange and mosambi[1]. It is cultivated in Haryana, Punjab and Rajasthan. The name blood red is due to red colour of the pulp[2]. The plant is known to treat relapse sickness which affects women who return to strenuous work too soon after delivery, and it cures fractures[3]In absence of chemical components of *C. sinensis* roots variety blood red, we have taken up the present study.

Melting points were determined on Ganson Electrical Melting Point Apparatus; ^{1}H NMR on Bruker AC 300 MHz NMR Spectrometer; IR on Hitachi 570 Infra Spectrophotometer; and Mass Spectra on VG 70 S 11-250 J GCMS-DS Spectrometer.

Roots of *C. sinensis* (3 Kg) were collected from Botanical Gardens, Hisar. These were chopped into small pieces which were dried in shade under a fan. Extraction was done with MeOH. Extractives were subjected to column chromatography. Elution had been

[*]Author for correspondence; E-mail: shashi.nawani@gmail.com

started with petroleum ether. The polarity of the solvent system was increased slowly. Five known compounds could be isolated and fully characterized.

$H_3C - (CH_2)_{29} - CH_3$

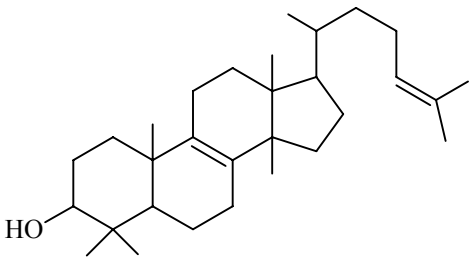
(1)

$H_3C - (CH_2)_{19} - COOH$

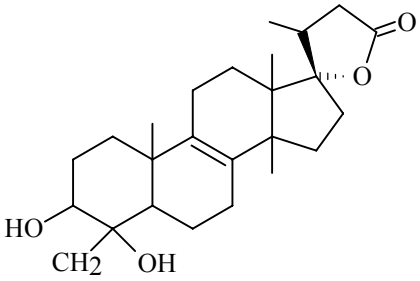
(2)

$H_3C - (CH_2)_{25} - CH_2 - COOH$

(3)



(4)



(5)

RESULTS AND DISCUSSION

Compound A (Hentriacontane, **1**) was obtained on elution with petroleum ether. It crystallized out from Methanol, 15 mg, mp 65^0 (Lit[4]. mp $66\text{-}68^0$). ^{1}H NMR (δ, $CDCl_3$): 0.77 (6 H, t, *J* 7.0 Hz, 2 x CH_3), 0.86-1.36 (58 H, m, 29 x CH_2). MS (m/z, rel. int.): 436 (M^+, 15).

Compound B (Heneicosanoic acid, **2**) was obtained on elution with benzene-petroleum ether (1 : 19). It crystallized out from MeoH, 20 mg, mp 72^0 (Lit.[5] mp 74^0). IR ($\nu_{max,}$ nujol, cm^{-1}): 1738, 2848. ^1H NMR (δ, $CDCl_3$): 0.76 ((3 H, t, *J* 7.5 Hz, CH_3), 1.18-1, 53 (36 H, m, 18 x CH_2), 2.10 (2 H, t, *J* 7.5 Hz, CH_2COO). MS (m/z, rel. int.): 326 ($M^{+,}$ 26).

Compound C (Octacosanoic acid, **3**) was obtained on elution with benzene-petroleum ether (1 : 9). It crystallized out from methanol, 25 mg, mp 88^0 (Lit.[6] mp $89\text{-}90^0$). IR ($\nu_{max,}$ nujol, cm^{-1}): 1737, 2848. ^1H NMR (δ, $CDCl_3$): 0.77 (3 H, *J* 7.5 Hz, CH_3), 1.18-1.50 (50 H, m, 25 x CH_2), 2.10 (2 H, t, *J* 7.5 Hz, CH_2COO). MS (m/z, rel. int.): 424 (M^+, 46).

Compound D (Euphol, **4**) was obtained on elution with benzene-petroleum ether (1 : 1). It crystallized out from benzene as a white solid, 20 mg, m.p. 112^0 (Lit[7]. m.p. 116^0). IR ($\nu_{max,}$ nujol, cm^{-1}): 3426. ^1H NMR (δ, $CDCl_3$): 0.73 (3 H, s, CH_3), 0.75 (3 H, s, CH_3), 0.84 (3 H, s, CH_3), 0.86 (3 H, s, CH_3), 0.88 (3 H, s, CH_3), 1.04(3 H, d, *J* 7.0 Hz, CH_3), 1.08-2.10 (29 H, m, 3 x CH, 10 x CH_2, 2 x CH_3), 3.45 (1 H, t, *J* 7.0 Hz, CHO), 5.28 (1 H, t, *J* 7.0 Hz, = CH-). MS (m/z, rel. int.): 426 (M^+, 16).

Compound E (3, 29-Dihydroxy-24, 25, 26, 27-tetra-norlansot-8-en-23, 17-olide, **5**) was obtained on elution with ethyl acetate-benzene (1 : 19). It crystallized out from MeOH, 20 mg, mp 302^0 (Lit.[8] mp above 300^0). It responded to Liebermann-Burchard test. IR ($\nu_{max,}$ nujol, cm^{-1}): 1743, 3395. ^1H NMR (δ, $CDCl_3$): 0.76-1.18 (12 H, 4 x CH_3), 1.23-2.24 (23 H, m, 9 x CH_2, 2 x CH, CH_3), 3.80-4.23 (3 H, m, CHO, CH_2O). MS (m/z, rel. int.): 416 (M^+, 51).

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