EVALUATION OF ANTIMICROBIAL ACTIVITY AND TOXIC POTENTIAL OF EXTRACTS AND TRITERPENES ISOLATED FROM *Maytenus imbricata*

Vanessa G. Rodrigues*, Lucienir P. Duarte, Grácia D. F. Silva, Fernando C. Silva, Jefferson V. Góes, Jacqueline A. Takahashi e Lúcia P. S. Pimenta

Departamento de Química, Instituto de Ciências Exatas, Universidade Federal de Minas Gerais, Av. Antônio Carlos, 6627, 31270-901 Belo Horizonte - MG, Brasil

Sidney A. Vieira Filho

Departamento de Farmácia, Escola de Farmácia, Universidade Federal de Ouro Preto, Rua Costa Sena, 171, 35400-000 Ouro Preto - MG, Brasil



Figure 1S. IR spectrum of compound 1 (KBr, cm⁻¹)



Figure 2S. ¹H NMR spectrum of compound 1 (400 MHz, CDCl₃)



Figure 3S. ¹³C NMR spectrum of compound 1 (100 MHz, CDCl₃)



Figure 4S. ¹³C NMR spectrum of compound 1 (100 MHz, CDCl₃)



Figure 5S. IR spectrum of compound 2 (KBr, cm⁻¹)



Figure 6S. ¹H NMR spectrum of compound 2 (200 MHz, CDCl₃)



Figure 7S. ¹³C NMR spectrum of compound 2 (50 MHz, CDCl₃)



Figure 8S. ¹³C NMR spectrum of compound 2 (50 MHz, CDCl₃)



Figure 9S. IR spectrum of compound 3 (KBr, cm⁻¹). The absorption band at 3442 cm⁻¹ was attributed to moisture in the KBr



Figure 10S. ¹H NMR spectrum of compound 3 (200 MHz, CDCl₃)



Figure 11S. ¹³C NMR spectrum of compound 3 (50 MHz, CDCl₃)



Figure 12S. ¹³C NMR spectrum of compound 3 (50 MHz, CDCl₃)



Figure 13S. IR spectrum of compound 4 (KBr, cm⁻¹)



Figure 14S. ¹H NMR spectrum of compound 4 (400 MHz, CDCl₃)



Figure 15S. ¹³C NMR spectrum of compound 4 (100 MHz, CDCl₃)



Figure 16S. IR spectrum of compound 5 (KBr, cm⁻¹)



Figure 17S. ¹H NMR spectrum of compound 5 (400 MHz, CDCl₃)



Figure 18S. ¹³C NMR spectrum of compound 5 (100 MHz, CDCl₃)



Figure 19S. IR spectrum of compound 6 (KBr, cm⁻¹)



Figure 20S. ¹H NMR spectrum of compound 6 (400 MHz, CDCl₃ + CD₃OD)



Figure 21S. ¹³C NMR spectrum of compound 6 (100 MHz, $CDCl_3 + CD_3OD$)

Table 1S. Comparison of 13 C NMR data of compound 1 with literature for 11α -hydroxylup-20(29)-en-3-one

Table 2S. Comparison of ¹³C NMR data of compound **2** with literature for 3β ,11 α -hydroxylup-20(29)-en-3-one

1 CH_2 42.09 42.07 1 CH_2 39.83 39.00 2 CH_1 34.23 34.21 2 CH_2 27.41 27.50 3 $C=0$ 218.78 218.84 3 CH 78.57 78.60 4C 47.63 47.63 4C 39.38 39.40 5 CH 54.78 54.76 5 CH 55.52 55.60 6 CH_2 19.66 19.64 6 CH_2 18.10 18.10 7 CH_2 34.27 34.27 7 CH_2 35.26 35.30 8C 42.43 42.41 8C 42.54 41.10 9 CH 54.90 54.87 9 CH 55.65 55.70 10C 38.22 38.20 100 C 38.97 37.70 11 $CHOH$ 70.50 70.49 11 CH_2 27.66 27.70 13 CH 37.19 37.17 13 CH 37.02 37.02 14C 42.42 42.16 14 C 42.60 42.60 15 CH_2 35.42 35.40 16 CH_2 35.47 35.50 16 CH_2 35.42 35.40 16 CH_2 43.02 43.00 18 CH 47.52 47.63 18 CH 47.72 47.70 19 CH_3 27.41 27.46 23 CH_2 <td< th=""><th>N°</th><th>Type of carbon</th><th>$\delta_{_{\rm C}}$ of compound 1</th><th>$\delta_{\rm C}$ ref. 22</th><th>N°</th><th>Type of carbon</th><th>$\delta_{\rm C}$ of compound 2</th><th>$\delta_{\rm C}$ ref. 21</th></td<>	N°	Type of carbon	$\delta_{_{\rm C}}$ of compound 1	$\delta_{\rm C}$ ref. 22	N°	Type of carbon	$\delta_{\rm C}$ of compound 2	$\delta_{\rm C}$ ref. 21
2 CH_1 34.23 34.21 2 CH_1 27.41 27.50 3 $C=0$ 218.78 218.84 3 CH 78.57 78.60 4C 47.63 47.63 44 C 39.38 39.40 5 CH 54.78 47.63 44 C 39.38 39.40 6 CH_2 19.66 19.64 6 CH_2 18.10 18.10 7 CH_2 34.27 34.27 7 CH_2 35.26 35.30 8C 42.63 42.41 8C 42.54 41.10 9CH 55.65 55.70 55.65 55.70 70.70 10C 38.22 38.20 10C 38.97 37.70 11CH0H 70.50 70.49 11CH 70.52 70.50 12 CH_1 37.48 37.14 12 CH_2 27.66 27.70 13CH 37.02 37.20 37.20 37.27 34.27 35.42 42.16 14 C 42.60 42.60 14C 42.42 42.16 14 C 42.60 42.60 42.60 15 CH_2 27.43 27.41 15 CH_3 25.47 35.50 16 CH_3 35.42 35.40 16 CH_3 35.42 35.40 17C 43.06 43.05 17 C 43.02 43.00 18 CH <td>1</td> <td>CH_2</td> <td>42.09</td> <td>42.07</td> <td>1</td> <td>CH_2</td> <td>39.83</td> <td>39.00</td>	1	CH_2	42.09	42.07	1	CH_2	39.83	39.00
3C=O218.78218.843CH 78.57 78.60 4C47.6347.634C39.3839.405CH54.7854.765CH55.2255.606CH_219.6619.646CH_218.1018.107CH_234.2734.277CH_235.2635.308C42.6342.418C42.5441.109CH54.9054.879CH55.6555.7010C38.2238.2010C38.9777.7011CH0H70.5070.4911CH70.5270.5012CH_237.4837.4412CH_227.6627.7013CH37.1937.1713CH37.0237.7014C42.4242.1614C42.6042.6015CH_227.4327.4115CH_235.4735.5016CH_235.4235.4016CH_235.4735.5017C43.0643.0517C43.0243.0018CH47.7247.7019CH47.7247.7019CH47.6547.6318CH47.7247.7019CH47.7229.8029.7821CH_229.7829.9022CH_239.8239.80 <td>2</td> <td>CH_2</td> <td>34.23</td> <td>34.21</td> <td>2</td> <td>CH_2</td> <td>27.41</td> <td>27.50</td>	2	CH_2	34.23	34.21	2	CH_2	27.41	27.50
4C47.6347.634C39.3839.405CH54.7854.765CH55.5255.606CH219.6619.646CH218.1018.107CH234.2734.277CH235.2635.308C42.6342.418C42.5441.109CH54.9054.879CH55.6555.7010C38.2238.2010C38.9737.7011CH0H70.5070.4911CH70.5270.5012CH237.4837.4412CH227.6627.7013CH37.1937.1713CH37.0237.7014C42.4242.1614C42.6042.6015CH227.4327.4115CH227.4127.5016CH235.4235.4016CH235.4735.5017C43.0643.0517C43.0247.0719CH47.7247.7019CH47.7247.7019CH47.72150.2020C150.26150.2220C150.22150.2020C150.26150.2221CH229.8029.7821CH229.7829.9022CH316.7016.7125CH3<	3	C=O	218.78	218.84	3	СН	78.57	78.60
5CH54.7854.765CH55.5255.606CH219.6619.646CH218.1018.107CH334.2734.277CH335.2635.308C42.6342.418C42.5441.109CH54.9054.879CH55.6557.7010C38.2238.2010C38.9737.7011CHOH70.5070.4911CH70.5270.5012CH337.4837.4412CH237.0237.7014C42.4242.1614C42.6042.6015CH235.4235.4016CH235.4735.5017C43.0643.0517C43.0243.0018CH47.7247.7019CH47.7247.7020C150.22150.2020C150.26150.2221CH229.8029.7821CH229.7829.9022CH339.8239.8022CH335.3015.6023CH316.7724CH315.5315.6024CH320.7724CH315.5315.6025CH316.7716.8626CH317.2317.3024CH320.7820.7724CH315.5315.	4	С	47.63	47.63	4	С	39.38	39.40
6 CH_2 19.6619.646 CH_2 18.1018.107 CH_2 34.2734.277 CH_2 35.2635.308C42.6342.418C42.5441.109CH54.9054.879CH55.6555.7010C38.2238.2010C38.9737.7011CHOH70.5070.4911CH70.5270.5012CH_237.4837.4412CH_227.6627.7013CH37.1937.1713CH37.0237.7014C42.4242.1614C42.6042.6015CH_227.4327.4115CH_235.4735.5016CH_235.4235.4016CH_235.4735.5017C43.0643.0517C43.0243.0018CH47.7247.7019CH47.7247.7020C150.22150.2020C150.26150.2221CH_229.8029.7821CH_229.7829.9022CH_316.7724CH_316.3916.1025CH_316.7016.7125CH_316.3916.1025CH_316.8716.8626CH_317.2317.3024CH_316.8716.86<	5	CH	54.78	54.76	5	СН	55.52	55.60
7 CH_2 34.27 34.27 7 CH_2 35.26 35.30 8C 42.63 42.41 8C 42.54 41.10 9 CH 54.90 54.87 9 CH 55.65 55.70 10C 38.22 38.20 10C 38.97 37.70 11 $CH0H$ 70.50 70.49 11 CH 70.52 70.50 12 CH_2 37.48 37.44 12 CH_2 27.66 27.70 13 CH 37.19 37.17 13 CH 37.02 37.70 14C 42.42 42.16 14C 42.60 42.60 15 CH_2 27.43 27.41 15 CH_2 27.41 27.50 16 CH_2 35.42 35.40 16 CH_2 35.47 35.50 17C 43.06 43.05 17C 43.02 43.00 18 CH 47.65 47.63 18 CH 47.72 47.70 19 CH 47.72 47.70 19 CH_2 29.78 29.90 22 CH_3 27.47 27.46 23 CH_3 28.27 28.30 23 CH_3 27.47 27.46 23 CH_3 28.27 28.30 24 CH_3 20.77 24 CH_3 16.39 16.10 25 CH_3 16.70 16.71 25 CH_3 16.39	6	CH_2	19.66	19.64	6	CH_2	18.10	18.10
8C42.6342.418C42.5441.109CH54.9054.879CH55.6555.7010C38.2238.2010C38.9737.7011CHOH70.5070.4911CH70.5270.5012CH237.4837.4412CH227.6627.7013CH37.1937.1713CH37.0237.7014C42.4242.1614C42.6042.6015CH227.4327.4115CH227.4127.5016CH235.4235.4016CH235.4735.5017C43.0643.0517C43.0243.0018CH47.7247.7019CH47.7247.7019CH47.72150.2020C150.26150.2020C150.22150.2020C150.26150.2021CH229.8029.7821CH229.7829.9022CH239.8239.8022CH341.0339.9023CH316.7016.7125CH316.3916.1025CH316.8716.8626CH317.2317.3024CH316.8716.8626CH317.2317.3025CH316.8716.8626 <td>7</td> <td>CH_2</td> <td>34.27</td> <td>34.27</td> <td>7</td> <td>CH_2</td> <td>35.26</td> <td>35.30</td>	7	CH_2	34.27	34.27	7	CH_2	35.26	35.30
9CH 54.90 54.87 9CH 55.65 55.70 10C 38.22 38.20 10C 38.97 37.70 11CH0H 70.50 70.49 11CH 70.52 70.50 12CH2 37.48 37.44 12CH2 27.66 27.70 13CH 37.19 37.17 13CH 37.02 37.70 14C 42.42 42.16 14C 42.60 42.60 15CH2 27.43 27.41 15CH2 27.41 27.50 16C 43.06 43.05 17C 43.02 43.00 17C 43.06 43.05 17C 43.02 43.00 18CH 47.72 47.70 19CH 47.72 47.70 20C 150.22 150.20 20C 150.26 150.22 21CH2 29.80 29.78 21CH2 29.78 29.90 22CH3 27.47 27.46 23 CH3 28.27 28.30 24CH3 16.70 16.71 25 CH3 16.39 16.10 26CH3 16.87 16.86 26 CH3 17.23 17.30 27CH3 16.43 14.42 27 CH3 14.51 14.50 28CH3 16.87 16.86 26 CH3 17.23 17.30 29CH3<	8	С	42.63	42.41	8	С	42.54	41.10
10C 38.22 38.20 10C 38.97 37.70 11CHOH 70.50 70.49 11CH 70.52 70.50 12CH2 37.48 37.44 12CH2 27.66 27.70 13CH 37.19 37.17 13CH 37.02 37.70 14C 42.42 42.16 14C 42.60 42.60 15CH2 27.43 27.41 15CH2 27.41 27.50 16CH2 35.42 35.40 16CH2 35.47 35.50 17C 43.06 43.05 17C 43.02 43.00 18CH 47.65 47.63 18CH 47.72 47.70 19CH 47.72 47.70 19CH 47.72 47.70 20C150.22150.2020C150.26150.2221CH2 29.80 29.78 21CH2 29.78 29.90 22CH2 39.82 39.80 22CH3 41.03 39.90 23CH3 27.47 27.46 23CH3 16.39 16.1026CH316.7016.7125CH316.3916.1026CH316.8716.8626CH317.2317.3027CH314.4314.4227CH314.5114.5028CH318.0918.0828	9	CH	54.90	54.87	9	СН	55.65	55.70
11CHOH70.5070.4911CH70.5270.5012CH237.4837.4412CH227.6627.7013CH37.1937.1713CH37.0237.7014C42.4242.1614C42.6042.6015CH227.4327.4115CH227.4127.5016CH235.4235.4016CH235.4735.5017C43.0643.0517C43.0243.0018CH47.6547.6318CH47.7247.7019CH47.7247.7019CH47.7247.7020C150.22150.2020C150.26150.2221CH239.8239.8022CH241.0339.9022CH327.4727.4623CH315.5315.6025CH316.7016.7125CH316.3916.1026CH316.8716.8626CH317.2317.3028CH318.0918.0828CH318.0718.1029=CH2109.95109.9529CH2109.91109.8430CH319.3519.9730CH319.3519.40	10	С	38.22	38.20	10	С	38.97	37.70
12 CH_2 37.4837.4412 CH_2 27.6627.7013 CH 37.1937.1713 CH 37.0237.7014 C 42.4242.1614 C 42.6042.6015 CH_2 27.4327.4115 CH_2 27.4127.5016 CH_2 35.4235.4016 CH_2 35.4735.5017 C 43.0643.0517 C 43.0243.0018 CH 47.6547.6318 CH 47.7247.7019 CH 47.7247.7019 CH 47.7247.7020 C 150.22150.2020 C 150.26150.2221 CH_2 29.8029.7821 CH_2 29.7829.9022 CH_3 27.4727.4623 CH_3 15.5315.6023 CH_3 20.7820.7724 CH_3 15.5315.6025 CH_3 16.7016.7125 CH_3 16.3916.1026 CH_3 16.8716.8626 CH_3 17.2317.3027 CH_3 14.4314.4227 CH_3 18.0718.1029 $=CH_2$ 109.95109.9529 CH_2 109.91109.8830 CH_3 18.0918.0828 CH_3 18.0718.1029 $=CH_2$ 109.95109.9529 </td <td>11</td> <td>CHOH</td> <td>70.50</td> <td>70.49</td> <td>11</td> <td>СН</td> <td>70.52</td> <td>70.50</td>	11	CHOH	70.50	70.49	11	СН	70.52	70.50
13CH 37.19 37.17 13CH 37.02 37.70 14C 42.42 42.16 14C 42.60 42.60 15CH2 27.43 27.41 15CH2 27.41 27.50 16CH2 35.42 35.40 16CH2 35.47 35.50 17C 43.06 43.05 17C 43.02 43.00 18CH 47.65 47.63 18CH 47.72 47.70 19CH 47.72 47.70 19CH 47.72 47.70 20C150.22150.2020C150.26150.2221CH2 29.80 29.78 21CH2 29.78 29.9022CH2 39.82 39.80 22CH2 41.03 39.90 23CH3 27.47 27.46 23CH3 12.53 15.60 24CH3 20.78 20.77 24CH3 15.53 15.60 25CH316.7016.7125CH3 16.39 16.10 26CH3 14.43 14.42 27 CH3 14.51 14.50 28CH318.0918.0828CH3 18.07 18.10 29=CH2 109.95 109.95 29 CH2 109.91 109.88 30CH3 19.38 19.37 30 CH3 19.35 19.40	12	CH_2	37.48	37.44	12	CH_2	27.66	27.70
14C42.4242.1614C42.6042.6015 CH_2 27.4327.4115 CH_2 27.4127.5016 CH_2 35.4235.4016 CH_2 35.4735.5017C43.0643.0517C43.0243.0018CH47.6547.6318CH47.7247.7019CH47.7247.7019CH47.7247.7020C150.22150.2020C150.26150.2021CH_229.8029.7821CH_229.7829.9022CH_339.8239.8022CH_241.0339.9023CH_327.4727.4623CH_315.5315.6024CH_316.7016.7125CH_316.3916.1025CH_316.8716.8626CH_317.2317.3026CH_316.8716.8626CH_317.2317.3027CH_314.4314.4227CH_314.5114.5028CH_318.0918.0828CH_318.0718.1029=CH_2109.95109.9529CH_2109.91109.8830CH_319.3819.3730CH_319.3519.40	13	CH	37.19	37.17	13	СН	37.02	37.70
15 CH_2 27.4327.4115 CH_2 27.4127.5016 CH_2 35.42 35.40 16 CH_2 35.47 35.50 17C 43.06 43.05 17C 43.02 43.00 18 CH 47.65 47.63 18 CH 47.72 47.70 19 CH 47.72 47.70 19 CH 47.72 47.70 20C150.22150.2020C150.26150.2021 CH_2 29.8029.7821 CH_2 29.7829.9022 CH_2 39.8239.8022 CH_2 41.0339.9023 CH_3 27.4727.4623 CH_3 15.5315.6025 CH_3 16.7016.7125 CH_3 16.3916.1026 CH_3 16.8716.8626 CH_3 17.2317.3027 CH_3 14.4314.4227 CH_3 14.5114.5028 CH_3 18.0918.0828 CH_3 18.0718.1029 $=CH_2$ 109.95109.9529 CH_2 109.91109.8030 CH_3 19.3819.3730 CH_3 19.3519.40	14	С	42.42	42.16	14	С	42.60	42.60
16 CH_2 35.42 35.40 16 CH_2 35.47 35.50 17 C 43.06 43.05 17 C 43.02 43.00 18 CH 47.65 47.63 18 CH 47.72 47.70 19 CH 47.72 47.70 19 CH 47.72 47.70 20 C 150.22 150.20 20 C 150.26 150.20 21 CH_2 29.80 29.78 21 CH_2 29.78 29.90 22 CH_2 39.82 39.80 22 CH_2 41.03 39.90 23 CH_3 27.47 27.46 23 CH_3 15.53 15.60 24 CH_3 16.70 16.71 25 CH_3 16.39 16.10 26 CH_3 16.87 16.86 26 CH_3 17.23 17.30 27 CH_3 14.43 14.42 27 CH_3 14.51 14.50 28 CH_3 18.09 18.08 28 CH_3 18.07 18.10 29 $=CH_2$ 109.95 109.95 29 CH_2 109.91 109.86 30 CH_3 19.38 19.37 30 CH_3 19.35 19.40	15	CH_2	27.43	27.41	15	CH_2	27.41	27.50
17C43.0643.0517C43.0243.0018CH47.6547.6318CH47.7247.7019CH47.7247.7019CH47.7247.7020C150.22150.2020C150.26150.2021CH229.8029.7821CH229.7829.9022CH239.8239.8022CH241.0339.9023CH327.4727.4623CH328.2728.3024CH316.7016.7125CH316.3916.1026CH316.8716.8626CH317.2317.3027CH314.4314.4227CH314.5114.5028CH318.0918.0828CH318.0718.1029=CH2109.95109.9529CH2109.91109.8030CH319.3819.3730CH319.3519.40	16	CH_2	35.42	35.40	16	CH_2	35.47	35.50
18CH47.6547.6318CH47.7247.7019CH47.7247.7019CH47.7247.7020C150.22150.2020C150.26150.2021CH229.8029.7821CH229.7829.9022CH239.8239.8022CH241.0339.9023CH327.4727.4623CH328.2728.3024CH320.7820.7724CH315.5315.6025CH316.7016.7125CH316.3916.1026CH316.8716.8626CH317.2317.3027CH314.4314.4227CH314.5114.5028CH318.0918.0828CH318.0718.1029=CH2109.95109.9529CH2109.91109.8030CH319.3819.3730CH319.3519.40	17	С	43.06	43.05	17	С	43.02	43.00
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	18	CH	47.65	47.63	18	СН	47.72	47.70
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	19	СН	47.72	47.70	19	СН	47.72	47.70
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	20	С	150.22	150.20	20	С	150.26	150.20
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	21	CH_2	29.80	29.78	21	CH_2	29.78	29.90
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	22	CH_2	39.82	39.80	22	CH_2	41.03	39.90
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	23	CH ₃	27.47	27.46	23	CH ₃	28.27	28.30
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	24	CH ₃	20.78	20.77	24	CH ₃	15.53	15.60
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	25	CH ₃	16.70	16.71	25	CH ₃	16.39	16.10
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	26	CH ₃	16.87	16.86	26	CH ₃	17.23	17.30
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	27	CH ₃	14.43	14.42	27	CH ₃	14.51	14.50
29 =CH ₂ 109.95 109.95 29 CH ₂ 109.91 109.80 30 CH ₃ 19.38 19.37 30 CH ₃ 19.35 19.40	28	CH ₃	18.09	18.08	28	CH ₃	18.07	18.10
30 CH ₃ 19.38 19.37 30 CH ₃ 19.35 19.40	29	=CH ₂	109.95	109.95	29	CH_2	109.91	109.80
	30	CH ₃	19.38	19.37	 30	CH ₃	19.35	19.40

Table 3S. Comparison of ¹³C NMR data of compound **3** with literature for 3,7-dioxo-friedelane

 Table 4S. Comparison of ¹³C NMR data of compound 4 with literature for

 3-oxo-29-hydroxyfriedelane

N°	Type of carbon	$\delta_{\rm C}$ of compound 3	$\delta_{\rm C}$ ref. 21	Nº	Type of carbon	$\delta_{\rm C}$ of compound 4	$\delta_{\rm C}$ ref. 21
1	CH_2	21.80	21.60	1	CH_2	22.29	22.30
2	CH_2	41.02	40.80	2	CH_2	41.53	41.60
3	C=O	211.12	210.60	3	С	213.18	212.20
4	СН	57.97	57.80	4	CH	58.25	58.30
5	С	47.18	47.00	5	С	42.17	42.20
6	CH_2	57.03	56.90	6	CH_2	41.30	41.40
7	C=O	210.61	210.20	7	CH_2	18.25	18.30
8	СН	63.65	63.40	8	CH	53.42	53.50
9	С	42.53	42.40	9	С	37.45	37.50
10	СН	59.16	59.00	10	CH	59.49	59.60
11	CH_2	35.63	35.50	11	CH_2	35.65	35.70
12	CH_2	29.71	29.80	12	CH_2	29.71	29.80
13	С	39.53	39.40	13	С	39.97	40.00
14	С	37.61	37.50	14	CH	38.25	38.30
15	CH_2	31.94	31.60	15	CH_2	32.75	32.80
16	CH_2	36.44	36.30	16	CH_2	35.89	36.00
17	С	30.27	30.10	17	С	29.77	29.80
18	СН	41.93	41.80	18	CH	41.88	42.00
19	CH_2	35.07	34.90	19	CH_2	30.60	30.60
20	С	28.21	28.00	20	С	33.12	33.20
21	CH_2	32.93	32.80	21	CH_2	27.81	27.90
22	CH_2	38.80	38.60	22	CH_2	39.51	39.60
23	CH ₃	6.98	6.80	23	CH ₃	6.83	6.80
24	CH ₃	15.32	15.10	24	CH ₃	14.67	14.70
25	CH ₃	18.42	18.20	25	CH ₃	17.89	17.90
26	CH ₃	19.39	19.20	26	CH ₃	18.46	18.40
27	CH ₃	19.61	19.40	27	CH ₃	20.77	20.80
28	CH ₃	32.26	32.10	28	CH ₃	32.09	32.10
29	CH ₃	31.71	31.80	29	CH_2	74.78	74.80
30	CH ₃	34.71	34.60	30	CH ₃	25.82	25.90

Table 5S. Comparison of 13 C NMR data of compound **5** with literature for tingenone

Table 6S. Comparison of 13 C NMR data of compound **6** with literature for 6-oxo-tingenol

N°	Type of carbon	$\delta_{\rm C}$ of compound 5	$\delta_{\rm C}$ ref. 23	Nº	Type of carbon	$\delta_{\rm C}$ of compound 6	$\delta_{\rm C}$ ref. 24
1	СН	119.80	119.80	1	СН	108.44	108.19
2	С	178.43	178.40	2	С	148.79	148.87
3	С	146.10	146.00	3	С	141.41	141.42
4	С	117.18	117.10	4	С	126.14	125.87
5	С	127.76	127.70	5	С	122.34	121.71
6	CH	133.62	133.60	6	C=O	187.94	187.90
7	CH	118.15	118.10	7	СН	126.05	125.53
8	С	168.69	168.70	8	С	170.85	171.02
9	С	42.73	42.70	9	С	40.34	40.07
10	С	164.72	164.70	10	С	151.25	150.99
11	CH_2	33.80	33.80	11	CH_2	35.56	35.23
12	CH_2	29.96	29.90	12	CH_2	30.26	29.93
13	С	40.64	40.60	13	С	40.00	39.75
14	С	44.66	44.60	14	С	44.34	44.02
15	CH_2	28.53	28.50	15	CH_2	28.45	28.14
16	CH_2	35.52	35.50	16	CH_2	32.10	31.81
17	С	38.20	38.20	17	С	38.36	38.18
18	CH	43.55	43.50	18	СН	43.54	43.23
19	CH ₂	32.08	32.00	19	CH_2	34.33	33.99
20	CH	41.92	41.80	20	СН	42.02	41.74
21	С	213.58	213.60	21	C=O	214.69	215.08
22	CH_2	52.56	52.50	22	CH_2	52.67	52.35
23	CH ₃	10.28	10.20	23	CH ₃	13.74	13.23
25	CH ₃	39.07	39.00	25	CH ₃	38.57	38.09
26	CH ₃	21.57	21.50	26	CH ₃	20.77	20.40
27	CH ₃	19.73	19.70	27	CH ₃	19.71	19.30
28	CH ₃	32.58	32.50	28	CH ₃	32.60	32.12
30	CH ₃	15.11	15.10	30	CH ₃	15.08	14.55