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New Acetylated Flavonol Glycosides from *Knoxia corymbosa*

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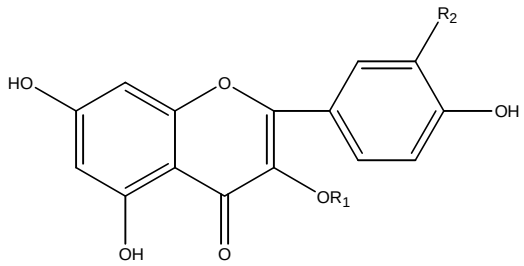
Abstract: Two new diacetylated flavonol glycosides, kampferol-3-O-β-3″, 6″-diacetylglucopyranoside and quercetin-3-O-β-3″, 6″-diacetylglucopyranoside were isolated from *knoxia corymbosa.* Their structures were elucidated by spectroscopic evidents.

Keywords: Acetylated flavonol glycosides, *Knoxia corymbosa*.

In our continued investigation on the bioactive compounds of *Knoxia corymbosa*[1], another two new diacetylated flavonol glycosides, kampferol-3-O-β-3″, 6″-diacetylgluco pyranoside and quercetin-3-O-β-3″, 6″-diacetylglucopyranoside were isolated from its EtOAc extraction.

Figure 1 The structures of compounds **1** and **2**



1 R_1=3, 6-diacetylglucose, R_2=H
2 R_1=3, 6-diacetylglucose, R_2=OH

Compound **1** was isolated as yellow needles. Its formula, $C_{25}H_{24}O_{13}$, was determined by HRFAB$^-$MS, found. 531.1130 (calcd.531.1138) as well as ^{13}C NMR data. The ^{1}H NMR spectrum (DMSO-d_6) showed kaempferol's characteristic proton signals (**Table 2**) at 6.87(d, 2H, J=8.8Hz, H-3′, 5′), 7.97(d, 2H, J=8.8Hz, H-2′, 6′), 6.44(d, 1H, J=1.7Hz, H-8), and 6.21(d, 1H, J=1.7Hz, H-6)[2]. The ^{13}C NMR spectrum data also

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clearly indicated one flavonol skeleton and one glucose unit. Besides there is the information of two acetyl carbon signals in the ^{13}C NMR spectrum. Compared with our previous reported compound kaempferol-7-*O*-*α*-L-arabinosyl-3-*O*-*β*-D-3″, 6″-diacetyl glucopyranoside[3], we deduced that the acetyls were linked to C-3″(δ 77.0) and C-6″(δ 62.3). The ^{1}H-^{1}H COSY, HMQC and HMBC data proved our deduction. The presence of cross peaks between $H_{Glc\text{-}1}$ (δ 5.46, J=7.2Hz) and C-3 (δ 133.0) confirmed that the glucose unit was link at C-3. So compound **1** was identified as kampferol-3-*O*-*β*-D-3″, 6″-diacetylglucopyranoside.

Compound **2** was obtained as yellow needle prisms. Its formula was determined as $C_{25}H_{24}O_{14}$ by analysis its ^{13}C NMR spectrum data accompanied by FAB^{-}MS which shows its quasi molecular ion peaks at *m/z* 548 and fragment ion at *m/z*191. The analysis of its ^{13}CNMR data (**Table 1**) suggested that compound **2** has the similar skeleton with quercetin-3-*O*-*β*-D-glucopyranoside[4]. Its sugar unit was quite similar to compound **1** but quite different with the known compound quercetin-3-*O*-*β*-D-3″, 6″-diacetylgalacto pyranoside[5].

Table 1 The assignment of ^{13}C NMR signals of compounds **1** and **2**

No.	**1**[a]	**2**[b]	No.	**1**[a]	**2**[b]
2	156.4	156.7	5′	115.1	116.5
3	133.0	133.3	6′	130.8	121.2
4	177.2	177.6	1″	100.9	101.0
5	161.2	161.6	2″	71.9	72.1
6	98.8	99.1	3″	77.0	77.5
7	164.3	164.6	4″	67.7	67.9
8	93.8	93.9	5″	73.6	73.9
9	156.7	157.0	6″	62.3	62.6
10	103.9	104.2	3″-OCOCH3	169.8	170.2
1′	120.7	121.8	3″-OCOCH3	20.1	21.4
2′	130.8	115.5	6″-OCOCH3	169.7	170.0
3′	115.1	145.1	6″-OCOCH3	21.0	20.4
4′	160.1	148.9		/	/

Table 2 ^{1}H NMR spectral data for **1** and **2**

No.	**1**[a]	**2**[b]
H-6	6.21(d, J=1.7Hz)	6.24(d, J=2.1Hz)
H-8	6.44(d, J=1.7Hz)	6.45(d, J=2.1Hz)
H-2′	7.97(d, J=8.8Hz)	7.58(m)
H-3′	6.87(d, J=8.8Hz)	/
H-5′	6.87(d, J=8.8Hz)	6.94 (d, J=8.8Hz)
H-6′	7.97(d, J=8.8Hz)	7.58(m)
OH-5	12.51(s)	12.60(s)
OH-7	10.89(s)	10.93(s)
OH-3′	/	9.75(s)
OH-4′	10.25(s)	9.27(s)
H-1″	5.46(d, J=7.2Hz)	5.49(d, J=7.8Hz)

[a] ^{1}HNMR and ^{13}CNMR spectra was obtained at 500 and 125MHz,δ in ppm, DMSO-d_6
[b] ^{1}HNMR and ^{13}CNMR spectra was obtained at 300 and 75MHz,δ in ppm, DMSO-d_6

Considering the above evidence, compound **2** was characterized as quercetin-

3-*O*-*β*-D-3″, 6″-diacetyl glucopyranoside.

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