A new flavonol from the kino of *Eucalyptus citriodora*

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Abstract

A new flavonol, 6-[1-(p-hydroxyphenyl)ethyl]rhamnocitrin (3) together with two known compounds, kaempferol (4) and 7-O-methyl aromadendrin (5) were isolated from the kino of *Eucalyptus citriodora* and their structures were elucidated on the basis of spectroscopic methods including 2D NMR experiments. Rhamnocitrin (1), 6-[1-(p-hydroxyphenyl)ethyl]-7-O-methyl aromadendrin (2), previously isolated from this plant, and compounds 3–5 were tested for inhibitory activity against 15-lipoxygenase. All compounds exhibited moderate to strong inhibitory activities, of which compounds 2, 3 and 5 showed stronger inhibitory activity (IC\(_{50}\) 19.7±0.5, 29.3±0.9, 31.4±1.0 µM, respectively) than the positive control quercetin (IC\(_{50}\) 37.5±0.8 µM).

Keywords: *Eucalyptus citriodora*; kino; lipoxygenase; flavonoids
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| Position | DEPT | $\delta^H$ (mult., J) | $\delta^C$ | HMBC (H$\rightarrow$C) | HMQC | NOESY |
|----------|------|------------------------|------------|------------------------|------|-------|
| 2        | C    | 147.2                  |            |                        |      |       |
| 3        | C    | 136.2                  |            |                        |      |       |
| 4        | C    | 176.3                  |            |                        |      |       |
| 5        | C    | 157.2                  |            |                        |      |       |
| 6        | C    | 115.8                  |            |                        |      |       |
| 7        | C    | 163.2                  |            |                        |      |       |
| 8        | CH   | 6.78 (s)               | 90.7       | 6, 7, 9, 10             | C-8  |       |
| 9        | C    | 154.6                  |            |                        |      |       |
| 10       | C    | 104.0                  |            |                        | 1'   |       |
| 1'       | C    | 121.8                  |            |                        |      |       |
| 2/6      | CH   | 8.08 (d, 8.8)          | 129.7      | 2, 4                   | C-2, 6 | H-3/5 |
| 3/5      | CH   | 6.93 (d, 8.8)          | 115.6      | 1, 4                   | C-3, 5 | H-2/6 |
| 4'       | C    | 159.5                  |            |                        |      |       |
| 1"       | CH   | 4.61 (q, 7.2)          | 31.8       | 5, 6, 7, 2', 3', 7', 8" | C-1" | H-3/7", H-8" |
| 2"       | C    | 135.2                  |            |                        |      |       |
| 3'/7"    | CH   | 7.06 (d, 8.6)          | 128.0      | 1", 5"                 | C-3', 7" | H-4'/6' | H-1" |
| 4'/6"    | CH   | 6.61 (d, 8.6)          | 114.7      | 2", 5"                 | C-4', 6" | H-3'/7" |
| 5"       | C    | 155.2                  |            |                        |      |       |
| 8"       | CH₃  | 1.61 (d, 7.2)          | 17.9       | 6, 2"                  |       |       |
| OCH₃     |     | 3.83 (s)               | 56.4       | 7                      |       |       |

*Assignments were based on the HMBC, HMQC, COSY, NOESY, and DEPT experiments.
Table S2. 15-Lipoxygenase inhibitory activity of compounds 1–5.

| Compounds | IC₅₀ (µM)   |
|-----------|------------|
| 1         | 47.5±1.0   |
| 2         | 19.7±0.5   |
| 3         | 29.3±0.9   |
| 4         | 58.8±0.8   |
| 5         | 31.4±1.0   |
| Quercetin | 37.5±0.8   |