Two New Aromatic Compounds from *Hericium erinaceum* (BULL.: FR.) PERS.1)

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Two new aromatic compounds, erinacerins A (1) and B (2), were isolated from the fruiting bodies of *Hericium erinaceum* (BULL.: FR.) PERS. (Hericaceae) together with a known compound, hericenone A (3). The structures of the new compounds were elucidated on the basis of their spectral data. It was found that 1 occurred as a racemate.

Key words *Hericium erinaceum*; Hericaceae; aromatic compound; mushroom

The fruiting bodies of *Hericium erinaceum* (BULL.: FR.) PERS. (Yamabushitake in Japanese, Hericiaceae) are known as an edible mushroom. The constituents of *H. erinaceum* have been previously investigated and shown to contain aro-

![Diagram of compounds 1, 2, and 3](chart1.png)

**Chart 1**

![Diagram of structures](structure1.png)

**Fig. 1.** $^1$H–$^1$H COSY (Bold Line) and HMBC (Full-Line Arrows) Correlations for 1

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tue of our initial preparation.

Compound 2, called erinacerin B, was obtained as an amorphous powder, $[\alpha]_D^{12} + 12.7^\circ$. The molecular formula was determined to be $C_{19}H_{24}O_5$ by HR-El-MS [m/z 314 (M$^+$–H$_2$O)] and $^{13}$C-NMR. The IR spectrum showed the presence of hydroxyl groups (3383 cm$^{-1}$), a phthalide (1763 cm$^{-1}$) and a benzene ring (1603 cm$^{-1}$). The $^1$H- and $^{13}$C-NMR spectra of 2 were similar to those of 3, except that the C-5' carbonyl group in 3 was replaced by a hydroxyl group in 2. The position of this hydroxyl group was confirmed by the 1H–1H COSY spectrum, in which H-5 and H-6' showed connectivity to H-2' and H-6'. The absolute configuration of the hydroxyl group at C-5' was determined as $S$ by comparing the specific rotation values of 2 ([$\alpha]_D^{12} + 12.7^\circ$ (MeOH)), (S)-(+)-ipsdienol [4, $[\alpha]_D^{12} + 15.7^\circ$ (MeOH)]$^{11}$ and (R)(−)-ipsdienol [5, $[\alpha]_D^{12} - 15.3^\circ$ (MeOH)].$^{11}$ On the basis of the above data, the structure of 2 was represented as shown in the formula.

**Experimental**

**General Procedures** Optical rotations were determined using a JASCO DIP-360 digital polarimeter. CD spectra were measured on a JASCO J-720 spectropolarimeter. IR spectra were recorded with a Perkin-Elmer Spectrum One FT-IR spectrophotometer and UV spectra with a Beckman DU-64 spectrophotometer. $^1$H- and $^{13}$C-NMR spectra were recorded on a JEOL JNM-LA 600 (600 and 150 MHz, respectively) and a JEOL JMN-LA 400 (400 and 100 MHz, respectively) spectrometers. Chemical shifts are given on a $\delta$ (ppm) scale, with tetramethylsilane as an internal standard. HR-El-MS were recorded on a JEOL JMS-DX 303 mass spectrometer. Column chromatography was carried on a Kieselgel 60 (230—400 mesh, Merck). HPLC was carried out on a Tosoh HPLC system (pump, CCPD; detector, RI-8010).

**Fungal Material** The fresh fruiting bodies of *Hericium erinaceum* (from Sendai, Miyagi Prefecture, Japan) were purchased in a food market.

**Extraction and Isolation** The fresh fruiting bodies of *H. erinaceum* (1.3 kg) were extracted three times with Et$_2$O at room temperature for 2 weeks. The Et$_2$O extract (6.8 g) was chromatographed on a silica gel column (3383 cm$^{-1}$), a phthalide (1763 cm$^{-1}$) and a benzene ring (1603 cm$^{-1}$). The $^1$H- and $^{13}$C-NMR spectra of 2 were similar to those of 3, except that the C-5’ carbonyl group in 3 was replaced by a hydroxyl group in 2. The position of this hydroxyl group was confirmed by the 1H–1H COSY spectrum, in which H-5 and H-6’ showed connectivity to H-2’ and H-6’.

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**References and Notes**


