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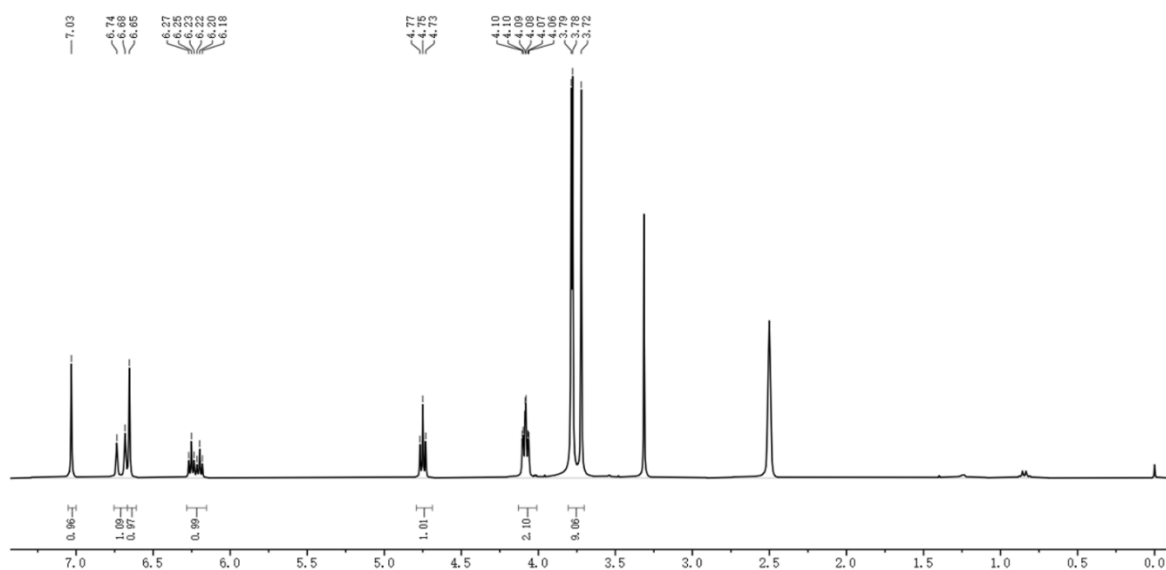
**Supporting information for article:**

**Synthesis, crystal structure and bioactivities of  $\alpha$ -asaronol**

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### S1. $^1\text{H}$ NMR spectral analysis

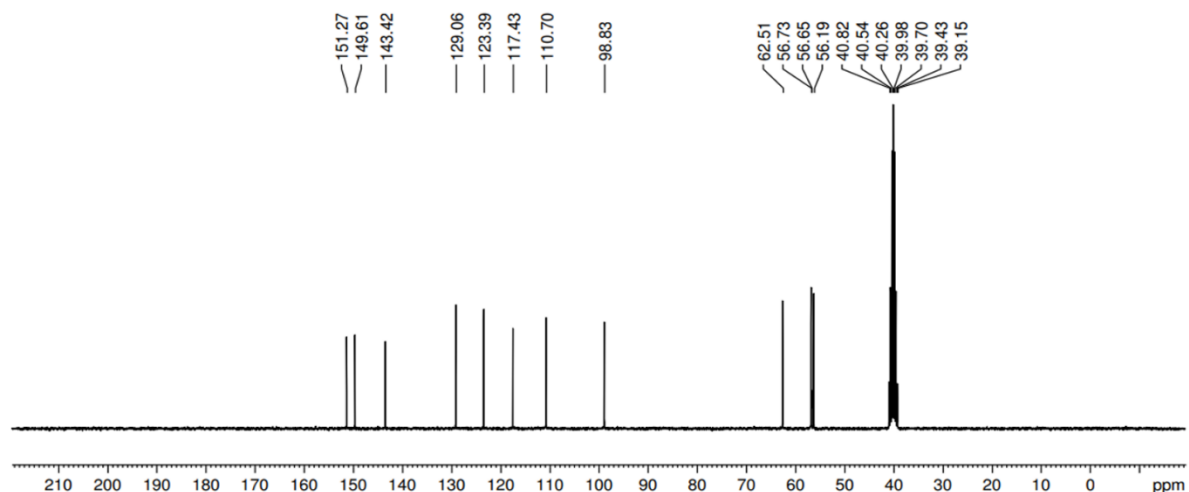
The  $^1\text{H}$  NMR spectrum of  $\alpha$ -asaronol is shown in Figure S1. Peaks between 3.72 ppm and 3.79 ppm are due to the three methoxy groups. The multiple peaks lying at 4.09-4.10 ppm are attributed to the two methylene hydrogens. The triplet peaks observed around 4.75 ppm are due to the hydrogen on the hydroxyl group. The multiple peaks located at 6.18-6.27 ppm are ascribed to the olefinic hydrogens near methylene. The two peaks at 6.65 ppm and 7.03 ppm belong to the two hydrogens of the para hydrogen on the benzene ring. The doublet peaks lying at 6.68-6.74 ppm are ascribed to the olefinic hydrogen near the benzene ring.



**Figure S1**  $^1\text{H}$  NMR spectrum of  $\alpha$ -asaronol (**2**) dissolved in  $\text{DMSO-}d_6$ .

### S2. $^{13}\text{C}$ NMR spectral analysis

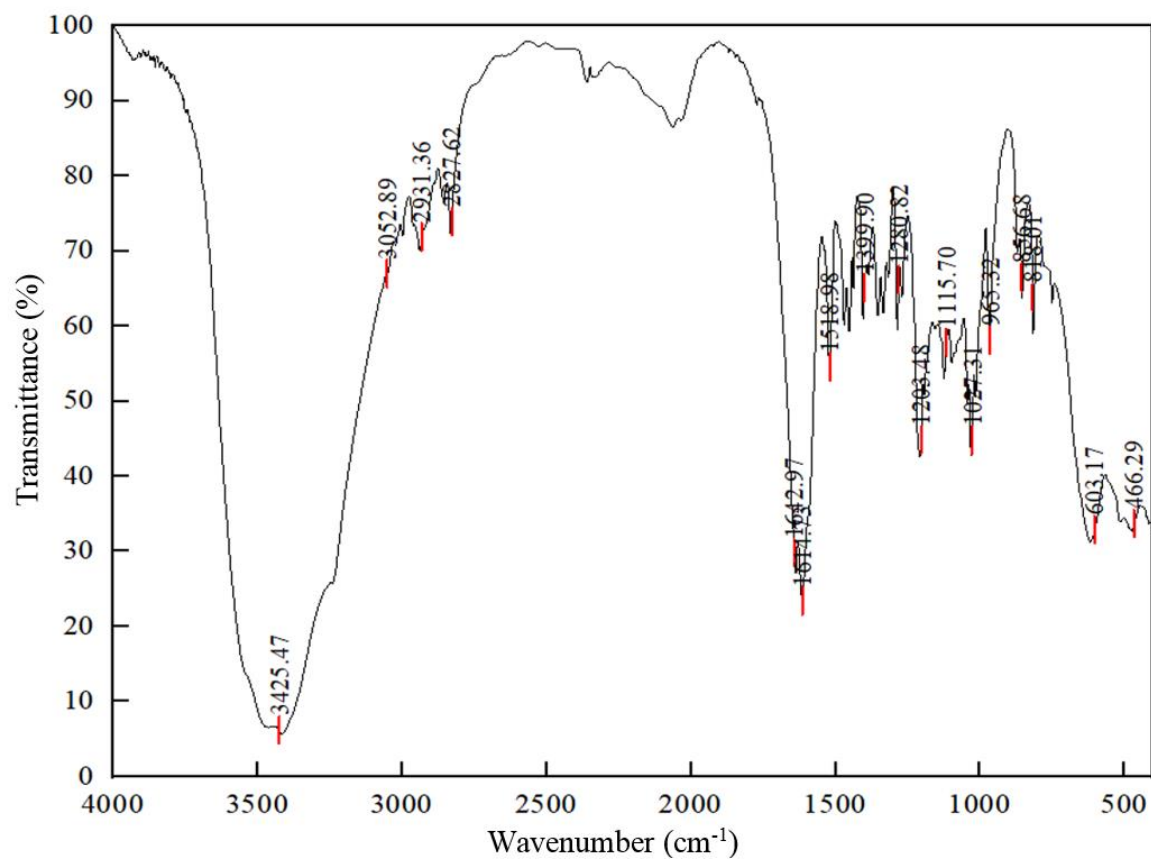
The  $^{13}\text{C}$  NMR spectrum of  $\alpha$ -asaronol is shown in Figure S2. The peaks at 56.198 ppm, 56.658 ppm and 56.731 ppm confirm the three methoxy groups, and 62.513 ppm is assigned to the methylene group. The olefinic carbons are observed from the peaks at 123.395 ppm and 129.067 ppm. The benzene ring carbons are shown at 98.830 ppm, 110.701 ppm, 117.437 ppm, 143.425 ppm, 149.618 ppm and 151.277 ppm.



**Figure S2**  $^{13}\text{C}$  NMR spectrum of  $\alpha$ -asaronol (**2**) dissolved in  $\text{DMSO-}d_6$ .

### S3. FT-IR spectral analysis

To confirm the presence of the functional groups in the  $\alpha$ -asaronol crystal, the FT-IR spectrum was recorded, as depicted in Figure S3. The broad band at  $3425.47\text{ cm}^{-1}$  represents O-H asymmetric stretching vibration, where the band shifts to a lower wavenumber due to the formation of intermolecular hydrogen bonds. The =C-H stretching vibration is exhibited at  $3052.89\text{ cm}^{-1}$ . The absorption bands at  $2931.36\text{ cm}^{-1}$  and  $2827.62\text{ cm}^{-1}$  correspond to the C-H stretching vibration. The aromatic C=C stretching vibration is exhibited at  $1642.97\text{ cm}^{-1}$ . The absorption band between  $1614.75$  and  $1518.98\text{ cm}^{-1}$  corresponds to the aromatic skeleton C=C stretching vibration. The -OCH<sub>3</sub> stretching vibration is exhibited at  $1456.98\text{ cm}^{-1}$ . The aromatic =C-H out-of-plane deformation vibration appears at  $965.32\text{ cm}^{-1}$ . The bands at  $856.68\text{ cm}^{-1}$  and  $818.01\text{ cm}^{-1}$  are due to the C-H asymmetric bending vibration.



**Figure S3** FT-IR spectrum of  $\alpha$ -asaronol (2).