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Isolation of ethyl caffeate from the petals of *Prunus yedoensis*

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Abstract Ethyl caffeate was isolated from the petals of *Prunus yedoensis* (Rosaceae). This is the first example of its isolation from *Prunus* plants.

Keywords Ethyl caffeate · *Prunus yedoensis* · Rosaceae · Petals

Ethyl caffeate (ethyl 3,4-dihydroxy cinnamate, **1**) was isolated from the petals of *Prunus yedoensis* (Rosaceae).

Dried petals of *P. yedoensis* (1.6 kg), cultivated in Aomori, Japan, were extracted with *n*-hexane, chloroform, and methanol successively, to furnish the corresponding extracts of 82, 89, and 400 g, respectively. Chromatography of a portion of the chloroform extract (10 g) over silica gel using chloroform–methanol (20:1, v/v) as solvent, followed by prep-TLC developed with chloroform–diethylether (3:1, v/v) afforded **1** (73 mg, 0.041% yield).

Some caffeic acid derivatives were isolated from the related *Prunus* sp. For example, 6-*O*-caffeoyl- β -glucopyranose was isolated from *P. grayana* barks [1], *P. buergeriana* barks [2], *P. serrulata* flowers [3], and *P. ssiori* barks [4]. On the other hand, 1,6-di-*O*-dicaffeoyl- β - β -glucopyranoside was isolated from *P. buergeriana* barks [2] and *P. serrulata* flowers [3], and 3-*O*-caffeoyl- β - β -fructofuranosyl 2,3,4,6-tetra-*O*-acetyl- α - β -glucopyranoside was isolated from *P. ssiori* barks [4]. Further, 1-*O*-caffeoyl- β - β -glucopyranoside was isolated from the twigs of *P. spinosa* [5].

The existence of **1** in the extracts of petals of *P. serrulata* was reported by Kurkin et al. [6]. However, it has been considered as an artifact formed under extraction process using ethanol as a solvent [6]. In the meantime, ethanol was not used in this study, and, in addition, **1** was also detected in the hexane extract of this plant material. Therefore, it was concluded that compound **1** must be obtained as a genuine compound and was not an artifact formed from caffeic acid and ethanol during isolation procedure.

This is the first example of the isolation of **1** from *Prunus* plants. From this plant material, other than compound **1**, ursolic acid (0.005% yield) and β -sitosterol (0.01% yield) were isolated from the chloroform extract, and 1-*O*-caffeoyl- β - β -glucopyranoside (1.1% yield) was isolated from the methanol extract, respectively. These compounds had been formerly isolated from leaves of *P. serrulata* [7], seed coats of *P. amygdalus* [8], and twigs of *P. spinosa* [5], respectively whereas these compounds have been isolated from *P. yedoensis* for the first time.

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