

Mumefural is a furylaldehyde found in heated fruit of *Prunus mume*, commonly referred to as Japanese or Chinese plum. It is known to improve blood flow.⁽¹⁾ Previous research has developed HPLC methods for analysis of mumefural,⁽²⁾ and this application note uses these methods to extract and determine mumefural from *Prunus mume* flesh extract and pickled plum.

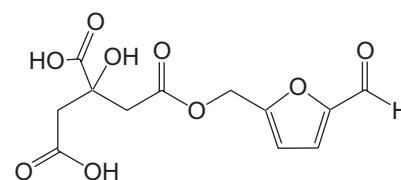
(1) Chuda Y. et al. *J. Agric. Food Chem.* 47(3), 828-831(1999).

(2) H. Yada et al. (2003) *Journal of the Japanese Society for Food Science and Technology* 50(4):188-192

About mumefural

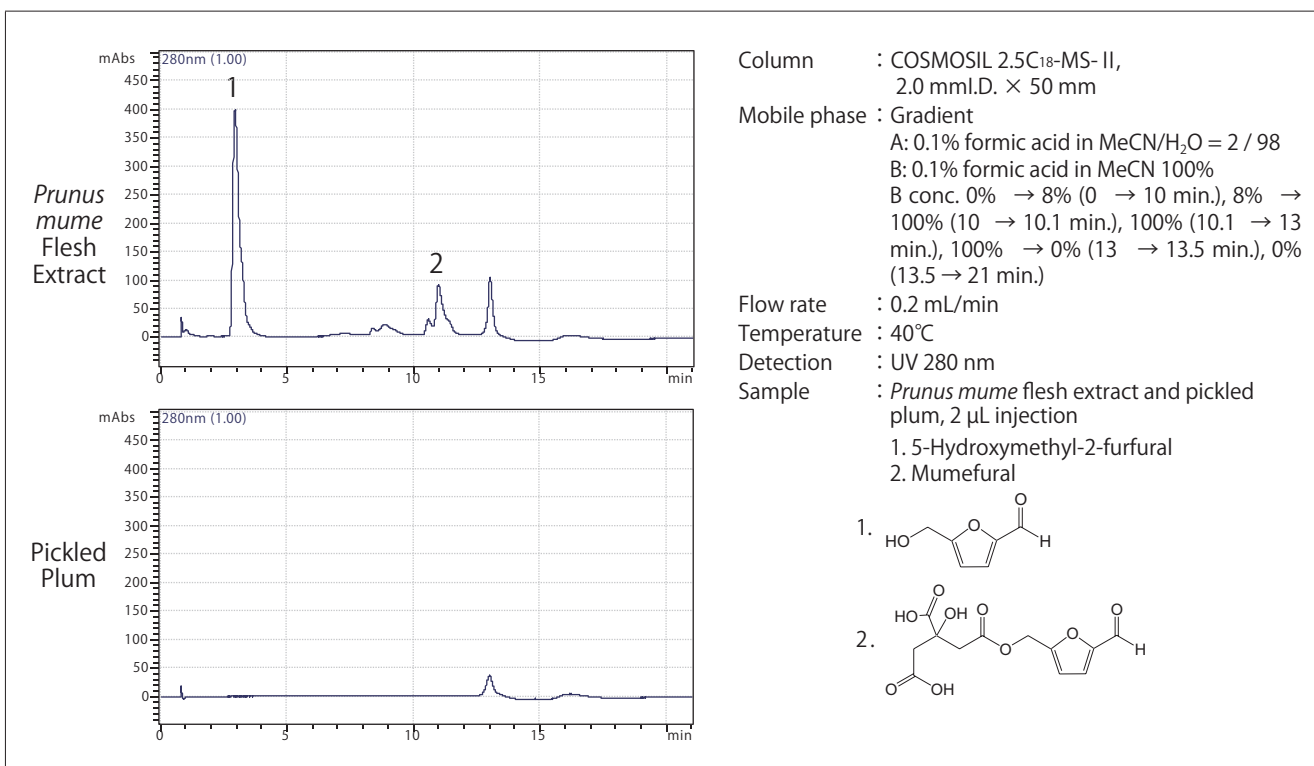
Mumefural (MF) is an ester of 5-hydroxymethyl-2-furfural (HMF) and citric acid, and it is abundant in the flesh of *Prunus mume* fruit.

The flesh extract is made by heating the fresh juice until it turns to paste, and it has been used as a folk medicine for its antibacterial and intestine-regulating properties in Japan since the Edo Period. For 1 kg of fruit, about 20 g can be extracted.



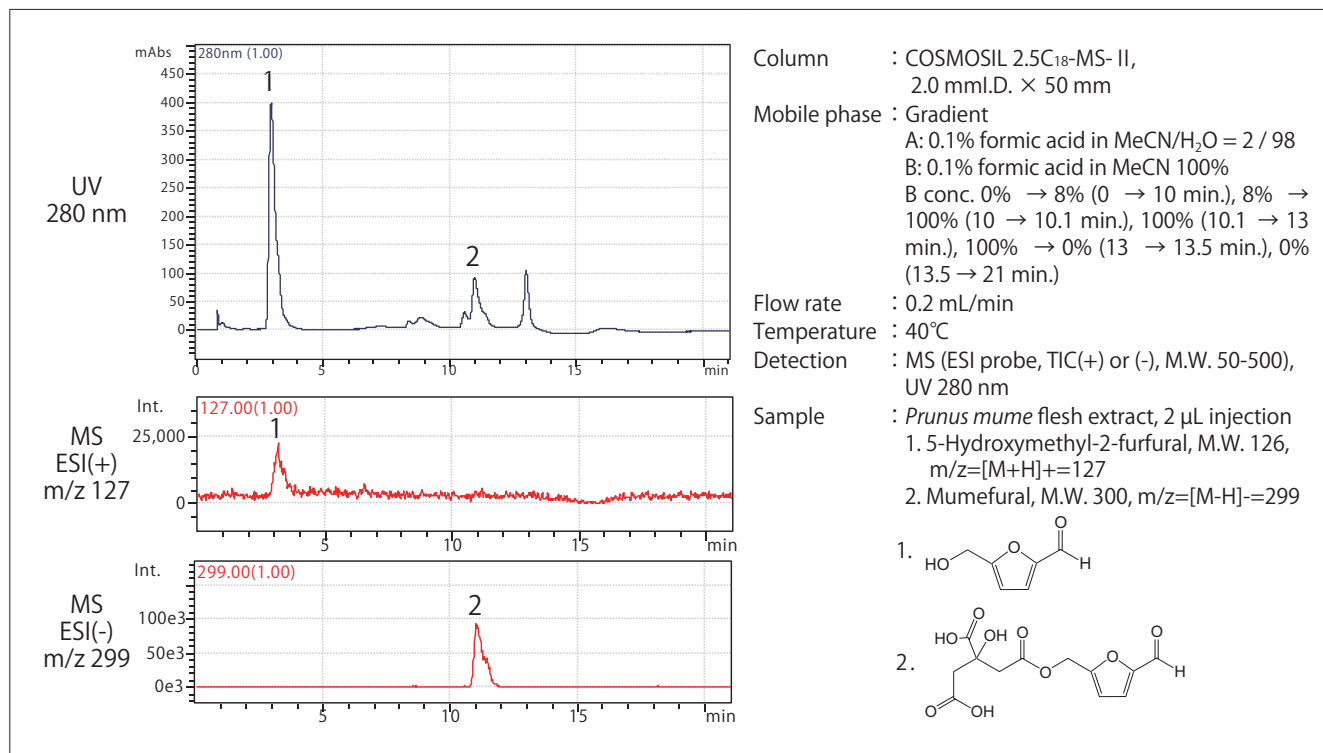
Mumefural structure

HPLC-UV for *Prunus mume* Flesh Extract and Pickled Plum



Both HMF and MF were found in *Prunus mume* flesh extract. Neither compound was contained in the pickled plums. It is thought that these compounds are not found in pickled plums because the fruit is not heated as part of the pickling process.

HPLC-MS for *Prunus mume* Flesh Extract



Sample Preparation

(1) *Prunus mume* flesh sample preparation

- ① *Flesh extract*
Mix commercially available *Prunus mume* fruit extract in a bottle.
- ② *Pickled plum*
Scrape flesh off of one pickled plum, and homogenize by crushing and mixing with a microspatula and forceps.

(2) Dissolution

- ① Measure 150 mg of flesh sample into a 15 mL centrifuge tube.
- ② Add 5 mL of Milli-Q® water, and vortex sample to homogenize.
- ③ Centrifuge at 6,000 × g at room temperature for 10 min.

(3) Solid Phase Extraction

- ① Wash an Oasis® HLB Plus Cartridge with 5 mL of acetonitrile.
- ② Condition the cartridge with 5 mL of Milli-Q® water.
- ③ Load the supernatant from the dissolution procedure onto the cartridge. Push the plunger slowly to adsorb sample.
- ④ Wash the cartridge with 5 mL of Milli-Q water, ensuring that it drains to the last drop.
- ⑤ Elute the sample using 5 mL of acetonitrile/water (20/80) mixture.
- ⑥ Use the above eluate as sample.

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