

Determination of Ferulic acid with RP-HPLC method in oral solution containing extract of *Ferula assafoetida* L. and *Viscum album* L.



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Ferula assafoetida L. (Fig 1-2) is a medicinal plant widely used in the traditional medicine. Roots of *Asafoetida*, produces natural antiviral drug compounds that kill the swine flu virus, H1N1.1 The aim of this study was to develop and validate a RP-HPLC method for quality control of commercially available oral solution containing extract of *Ferula assafoetida* L. and *Viscum album* L.,

Determination of the content of *Ferula assafoetida* L. extract in the oral solution was made by determination of ferulic acid, one of components identified in *Ferula assafoetida* L. plant (Fig 3-5).

The chromatographic separation was achieved on a reversed-phase column Purospher STAR[®] RP -18e (150 x 4.6 mm i.d., particle size 5 μ m), gradient run (using acetonitrile and 0.01 mol L⁻¹ orthophosphoric acid as a mobile phase), at 25 $^{\circ}$ C temperature. The flow rate was kept at 1.5 ml min⁻¹. Detection of ferulic acid was carried out at 316 nm using photodiode array detector. The proposed method was fully validated according to the ICH guidelines in terms of accuracy, precision, linearity and range.²⁻⁴ The obtained data for precision, (RSD of 9.69%), and accuracy (recovery of 104.39%) are suitable for this kind of analysis. The linearity of the proposed method was tested in the range of 0.1 – 1.8 μ g mL⁻¹ with regression coefficient of 0.9995 obtained. These validation results demonstrate the suitability of the method for quality control of this oral solution with expected content of ferulic acid of about 0.0001%, m/m (1ppm).

This developed HPLC method was proven to be precise, specific, sensitive, and accurate for routine quality assessment of raw material plant *Ferula assafoetida* L., its extract, and pharmaceutical products.

Keywords:

Ferulic acid; *Ferula assafoetida* L.; Natural antiviral drug; RP-HPLC.



Fig 1. *Ferula assafoetida* L.



Fig 2. *Ferula assafoetida* L.

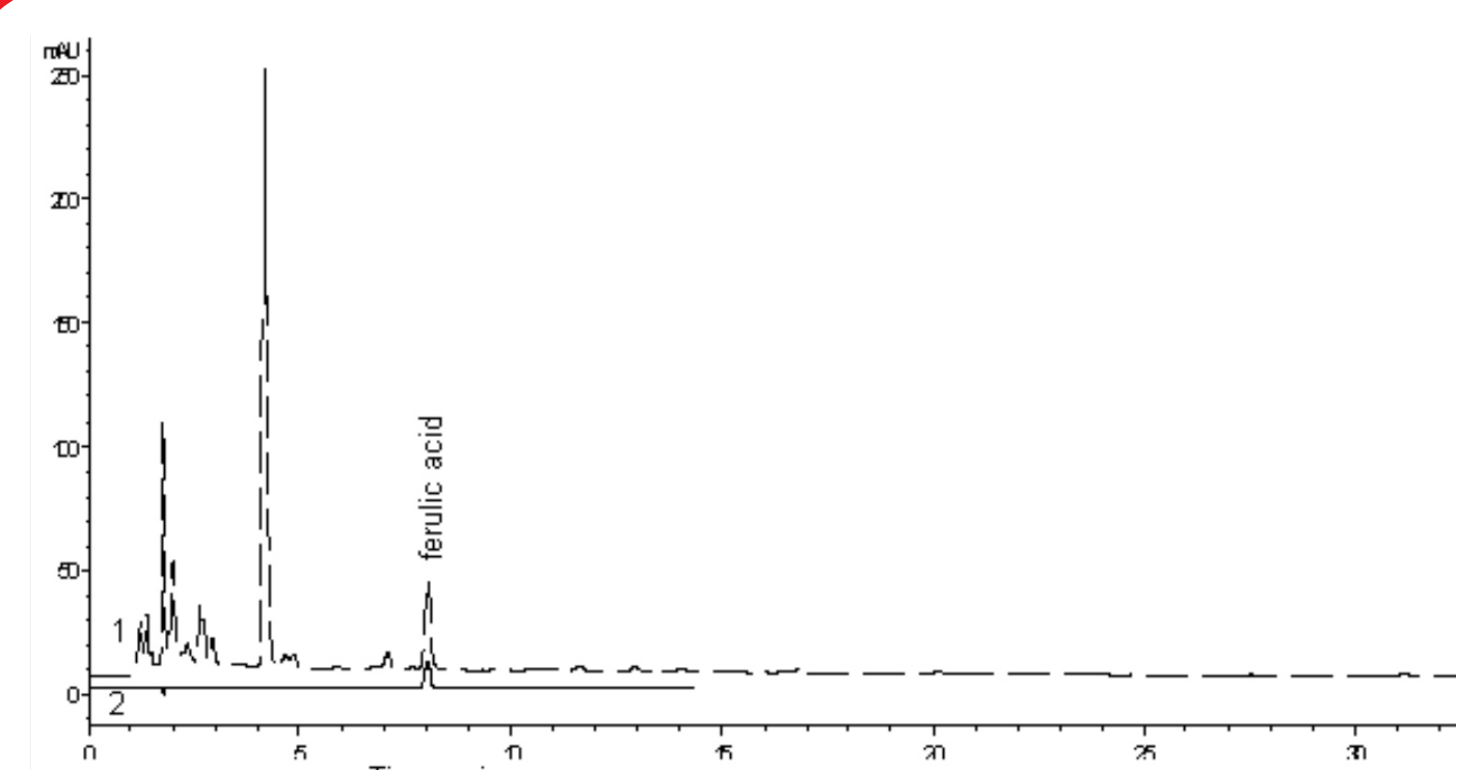


Fig. 3. Identification of ferulic acid in *Ferula assafoetida*: (1) plant extract and (2) standard substance solution

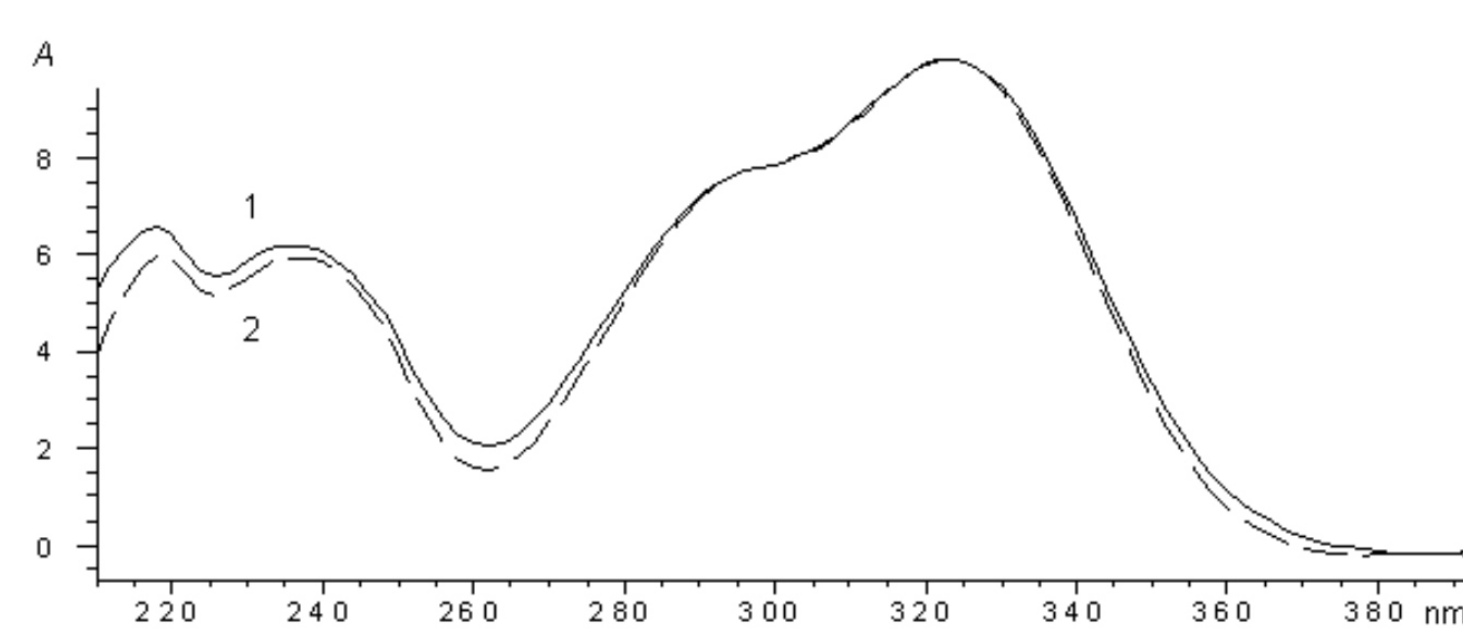


Fig. 4. UV spectra of: 1. ferulic acid and 2. analyzed product (oral solution)

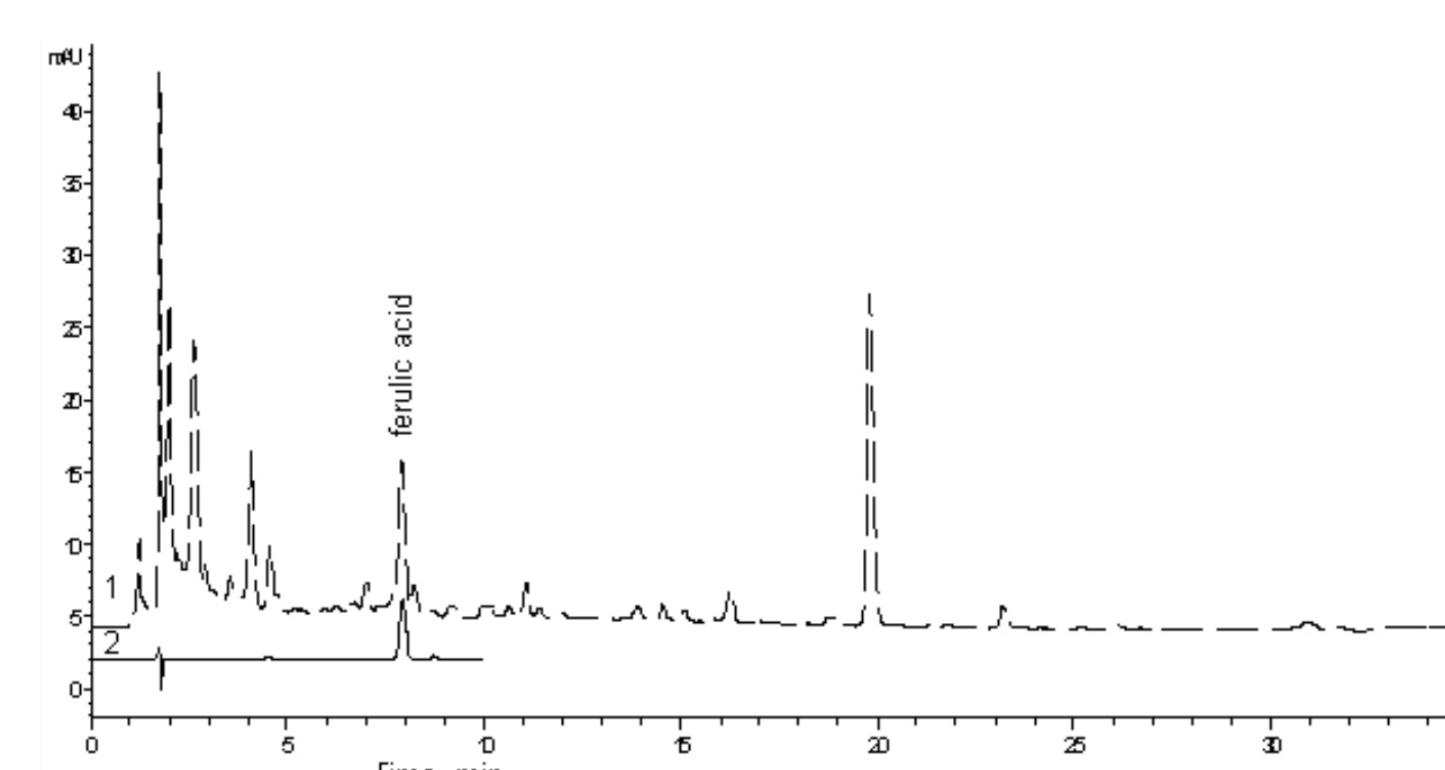


Fig. 5. Identification of ferulic acid in oral solution: (1) oral solution and (2) standard substance solution

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