

Analysis of Resveratrol in Wines (C18M 4D)

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Category: Alcohols / Amino Alcohols / Ketones

Resveratrol is a type of polyphenol found primarily in grape and peanut skins. Resveratrol has antioxidant effects and is expected to have effects such as anti-aging, prevention of diabetes, and improvement of blood pressure. In this application, we analyzed resveratrol in commercially available white and red wine (after sample pretreatment steps) using a silica-based reversed-phase chromatography column. The obtained calibration curve prepared using standard samples showed a highly linear calibration curve with a coefficient of determination (R^2) 1.0000, in the concentration range of 0.01 to 10 mg/L.

A resveratrol peak was detected in red wine, but only a small peak was observed in white wine. It can be considered that in general, red wine contains larger amount of resveratrol since the grape juice is squeezed out together with the skins and seeds, meanwhile white wine contains less resveratrol because the grape juice is squeezed out after removing the skins and seeds from the grapes.

Sample pretreatment

1. (Measure 50 mL of commercial wine and add 40 mL of water. Adjust the pH to 7.0 with 1 M NaOH aqueous solution.
2. Make up to 100 mL with Water.
3. Condition a polymer-based reversed-phase octadecyl functional group solid phase cartridge by passing 10 mL of methanol, and 50 mL of 30 mM sodium phosphate buffer (pH7.0).
4. Pour the wine sample from the step (2). (10 mL of red wine or 50 mL of white wine)
5. Blow nitrogen gas onto the solid phase cartridge to dry.
6. Pour 5 mL of ethyl acetate into the solid phase cartridge and collect the entire elute.
7. Blow nitrogen gas onto the obtained solution to dry.
8. Dissolve the obtained powder with a small volume of eluent. Make up with the eluent, up to 5 mL for red wine or 1 mL for white wine.
9. Filter with 0.45 μm filter and use it as a sample.

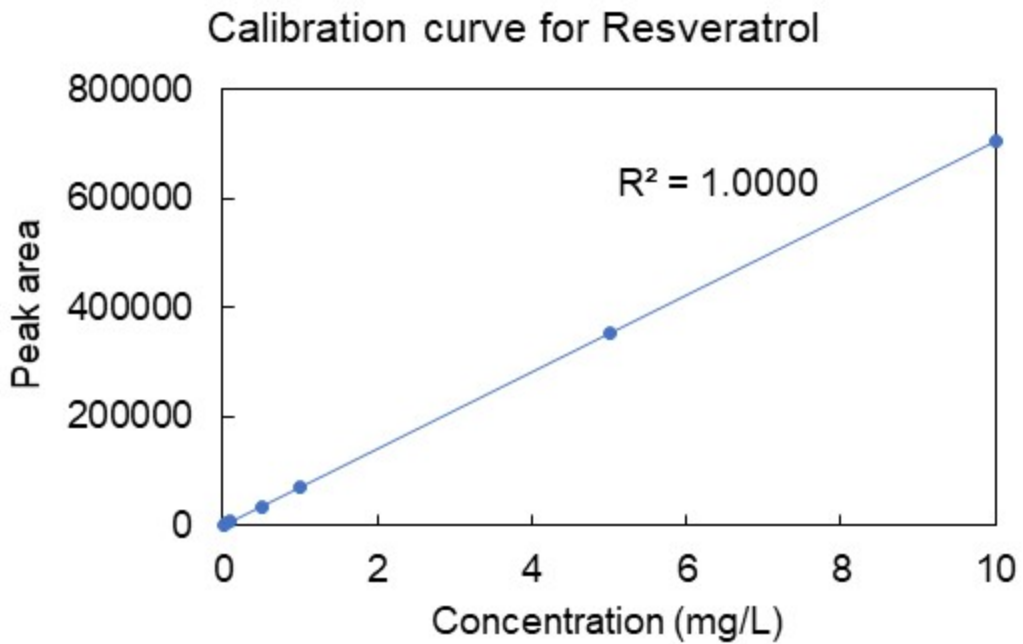
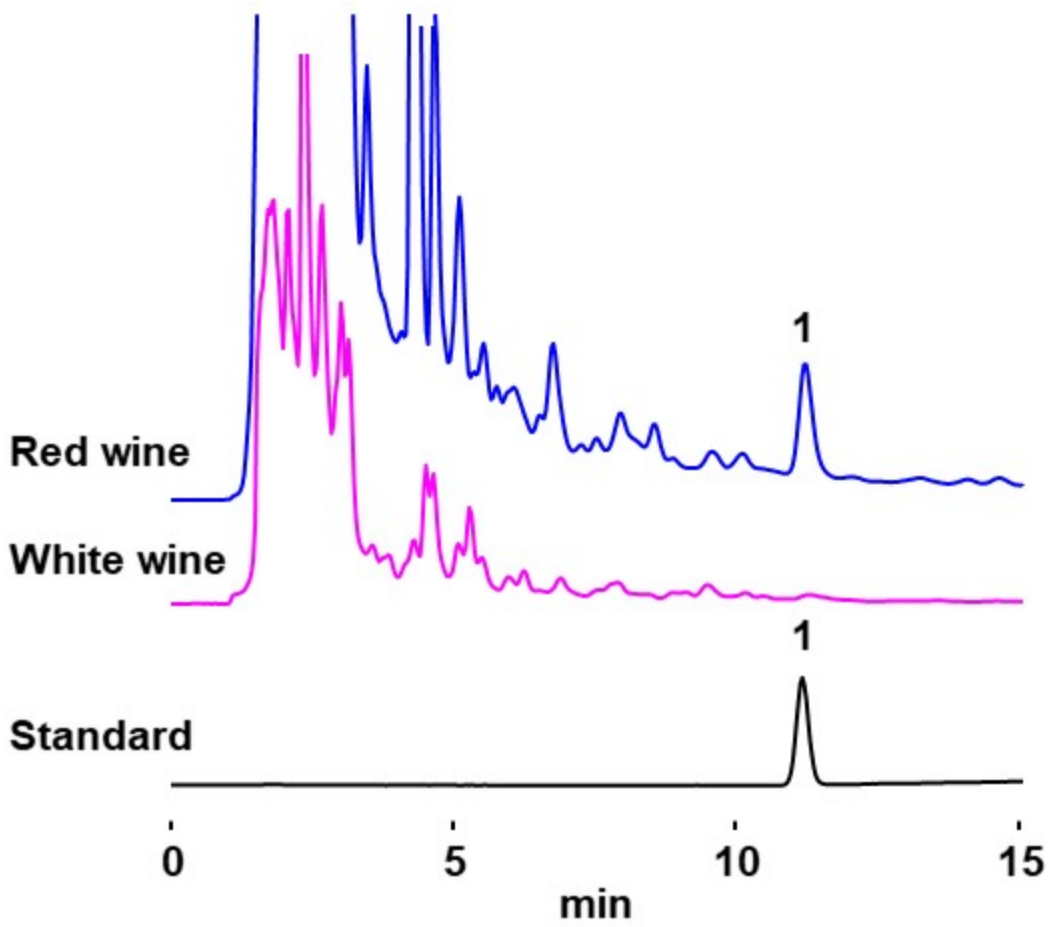
Sample: 5 μL

(Pretreated sample solution)

Red wine, White wine

(Standard solution) 1 mg/mL Resveratrol in eluent

1. Resveratrol



Column: Shodex Silica C18M 4D (4.6 mm I.D. x 150 mm)

Eluent: (A); 10 mM H₃PO₄ aq./CH₃CN=80/20

(B); 10 mM H₃PO₄ aq./CH₃CN=50/50

Linear gradient; (B %) 0 % (0 to 14 min), 0 % to 100 % (14 to 14.01 min), 100 % (14.01 to 20 min), 0 % (20.01 to 40 min)

Flow rate: 1.0 mL/min

Detector: UV (303 nm)

Column temp.: 40 °C