Rhubarb *(Radix et Rhizoma Rhei)* – 大黄

Sample source

Commercially available Rhubarb

Chemical reference substances

1. Emodin, 2. Chrysophanol, 3. Rhein, 4. Aloe-emodin, 5. Physcion (National Institute for the Control of Pharmaceutical and Biological Products)

Preparation of test solution

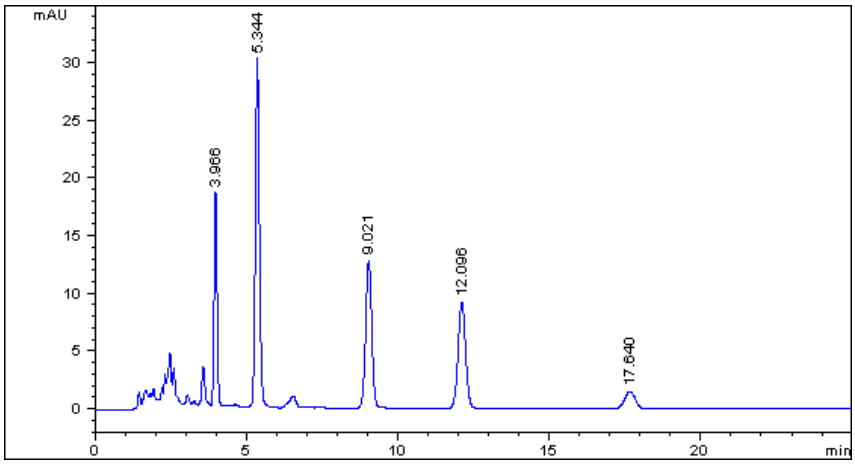
Accurately weigh 0.15 g of the powder in a stoppered conical flask, accurately add 25 mL of methanol and weigh. Heat under reflux on a water bath for 1 hour, cool, weigh again, replenish the lost solvent with methanol, mix well and filter. Accurately measure 5 mL of successive filtrate in a flask, discard the solvent, add 10 mL of 8 % solution of hydrochloric acid, treat ultrasonically for 2 minutes, and add 10 mL of chloroform. Heat under reflux for 1 hour, allow to cool, transfer to a separating funnel, wash the flask with a small quantity of chloroform and combine the washings in the separating funnel. Separate the chloroform layer, extract the acid solution again with three 10 mL quantities of chloroform, combine the chloroform extracts and evaporate the chloroform in vacuum to dryness. Dissolve the residue in methanol and transfer to a 10 mL volumetric flask, dilute with methanol to volume and mix well. Filter and use the filtrate as the test solution.

Chromatographic conditions

- Column: ZORBAX SB C18 4.6×150 mm, 5 µm (883975-902)
- Column temperature: 25 °C
- Mobile phase: methanol-0.6 % phosphoric acid (75:25)
- Detector wavelength: 254 nm
- Flow rate: 1.0 mL/min

Chromatographic system

- Agilent 1200 Series quaternary pump with vacuum degasser
- Agilent 1200 Series high-performance autosampler
- Agilent 1200 Series thermostatted column compartment
- Agilent 1200 Series variable wavelength detector
- System control through Agilent ChemStation revision B.01.01



Components	k'	Ret Time (min)	Height (mAU)	Area (mAU*s)	n	USP T_f
Emodin	5.014	9.021	12.78	177.8	10115	1.02
Chrysophanol	7.064	12.096	9.23	158.8	11586	1.01
Rhein	2.563	5.344	30.28	281.2	8174	1.09
Aloe-emodin	1.644	3.966	18.45	123.5	8387	1.06
Physcion	10.76	17.64	1.49	37.0	11579	1.00