Asian ginseng root, ren shen (*Panax ginseng*)

Related documents:	
SOP 001 General Methodology for HPTLC SOP 002 Identification by HPTLC	ID of Asian ginseng root ATS4 / Linomat5.pmf Asian ginseng root_xxx.pcf **Note: results from additional detection modes may be included in the pcf file!**f

1. Scope

This method identifies dried Asian ginseng root (*Panax ginseng* C.A. Meyer) by HPTLC fingerprint and discriminates dried American ginseng root *(Panax quinquefolius* L.*)* and dried Notoginseng root (*Panax notoginseng* (Burkill). F.H. Chen).

2. Source of method

CAMAG MOA 002

3. Procedure

Sample preparation:	Mix 1 g of powdered sample with 10 mL of ethanol and sonicate for 10 minutes, then centrifuge or filter the solutions and use the supernatants / filtrates as test solutions.
Reference substances:	Dissolve 2 mg of aescin in 5 mL of methanol. Dissolve 4 mg arbutin in 5 mL of methanol.
Stationary phase:	HPTLC Si 60 F_{254}
Application:	5 µL of references, 10 µL of test solutions
Mobile phase:	Chloroform, ethyl acetate, methanol, water 15:40:22:9 (v/v/v/v)
Development:	- Saturated chamber - Developing distance 80 mm from lower edge - Relative humidity 33%
Derivatization reagent:	Sulfuric acid reagent Preparation: 20 mL of sulfuric acid 98 % in 180 mL of methanol. Use: Dip (time 0, speed 5), heat at 100°C for 5 min
Documentation:	1.) Clean plate, white RT 2.) Sulfuric acid reagent, UV 366 nm 3.) Sulfuric acid reagent, white RT

4. Results

Note: The images presented in this section are examples and are not intended to be used as basis for setting specifications for quality control purposes.

Fig. 1) Sulfuric acid reagent, UV 366nm

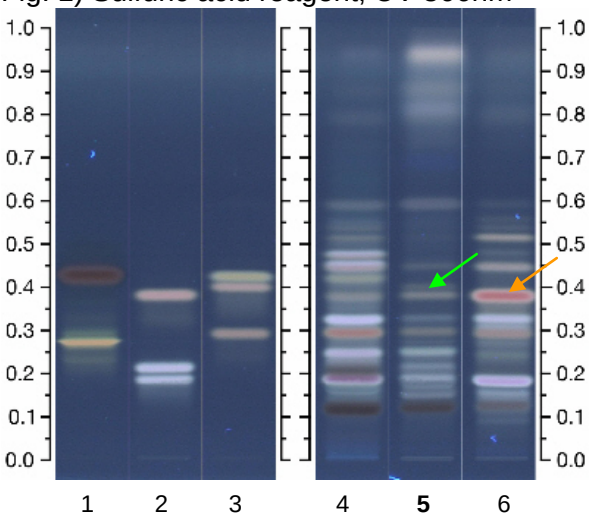
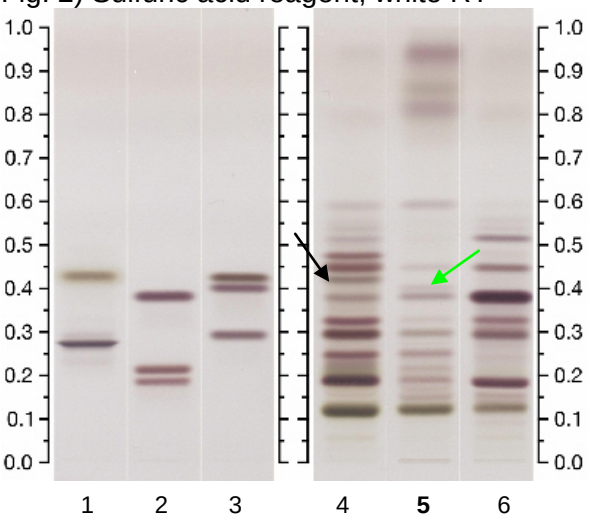


Fig. 2) Sulfuric acid reagent, white RT



Track	Volume	Sample	Track	Volume	Sample
1	5 µL	Aescin, arbutin (with increasing Rf)			
2	5 µL	Ginsenoside Rb1, ginsenoside Rb2, ginsenoside Rg1			
3	5 µL	Notoginsenoside R1, ginsenoside Rf, pseudoginsenoside F11			
4	10 µL	American ginseng root			
5	**10 µL**	**Asian ginseng root**			
6	10 µL	Notoginseng root			

System suitability test

Aescin: grey violet zone at Rf ~ 0.28

Arbutin: olive brown zone at Rf ~ 0.44

Identification

Compare result with reference images. The fingerprint of the test solution is similar to that of the corresponding botanical reference sample. Additional weak zones may be present.

Under white light the test solution shows one prominent dark olive zone in the lower part of the chromatogram. Above it there are several intense reddish violet zones. There is a characteristic but weak zone corresponding to ginsenoside Rf at Rf ~ 0.40 (green arrows). This zone is neither seen in American ginseng root nor in Notoginseng root. Just below this zone a prominent zone corresponding to ginsenoside Rg1 is seen. Just above the position of the aescin reference there is a zone at Rf ~ 0.30 (corresponding to notoginsenoside R1) and just below the aescin reference there is another zone at Rf ~ 0.26. A zone corresponding to ginsenoside Rb1 is detected at Rf ~ 0.2. Under UV 366 nm most zones show either yellow brown or pale blue-violet fluorescence.

Test for adulteration

No zone is seen under white light at the position corresponding to pseudoginsenoside F11 at Rf ~ 0.43 (black arrow; American ginseng root). No intense red fluorescent zone is seen under UV 366 nm at the position corresponding to ginsenoside Rg1 (orange arrow; Notoginseng root).

Revision history:	
Version 1	Created by: EC/01 Dec 2009