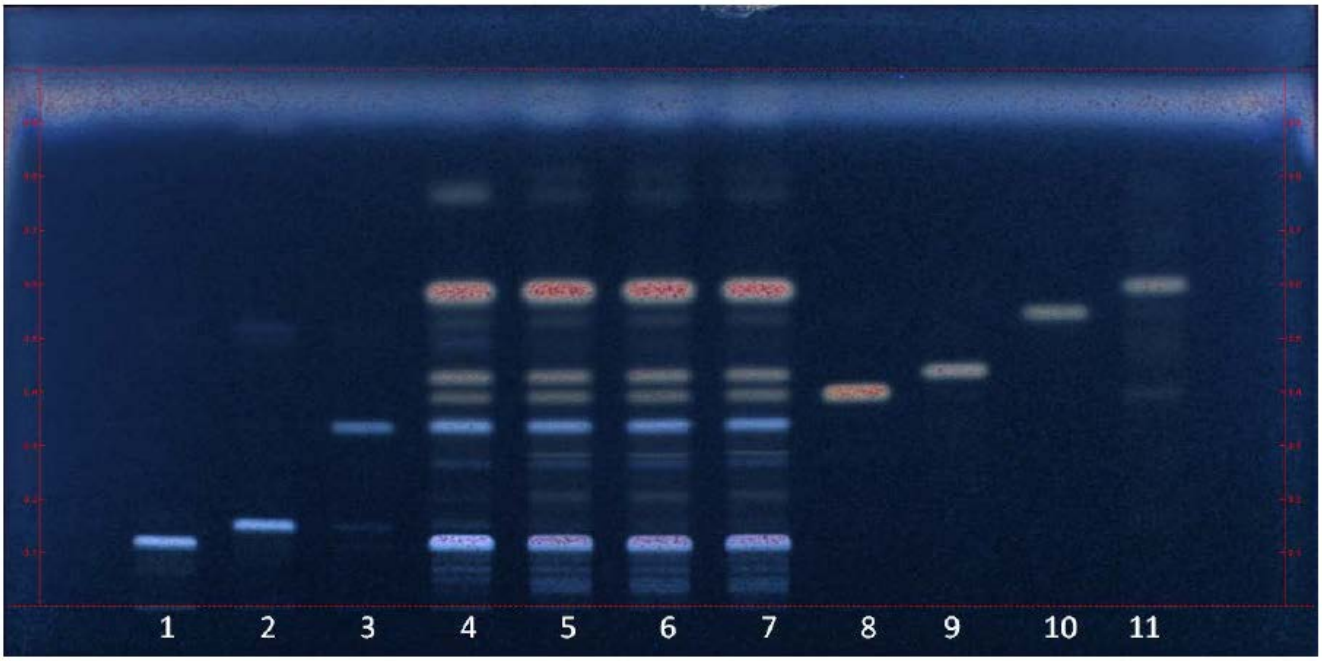
# *Panax notoginseng* Root and Rhizome — Identification

## Thin-Layer Chromatography (Ginsenosides)




**Typical HPTLC Chromatograms**

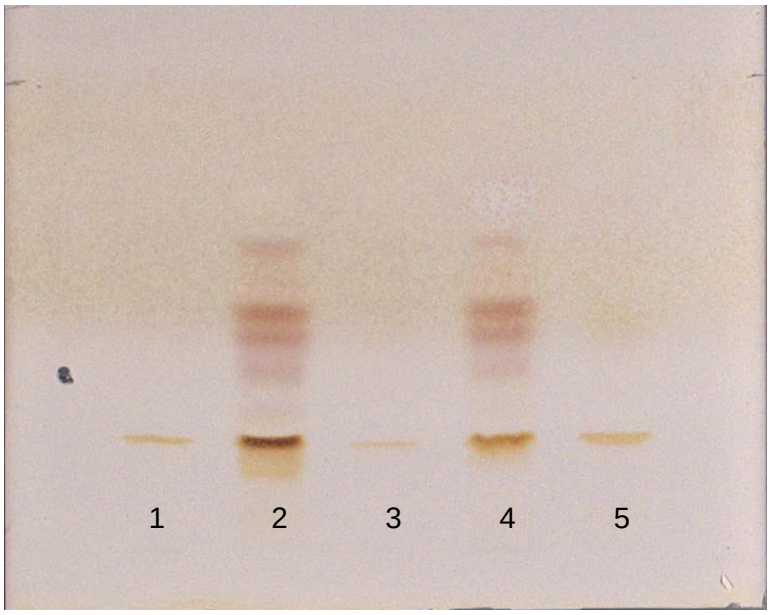
***These chromatograms are supplied for information only***

**Track assignment:** 1) ginsenoside Rb1 (0.5 mg/mL); 2) ginsenoside Rb2 (0.5 mg/mL); 3) ginsenoside Rd (0.5 mg/mL); 4) *Panax notoginseng* Root and Rhizome Dry Extract (10 mg/mL); 5-7) *Panax notoginseng* Root and Rhizome, commercial samples; 8) ginsenoside Re (0.5 mg/mL); 9) notoginsenoside R1 (0.5 mg/mL); 10) ginsenoside Rg2 (0.5 mg/mL); 11) ginsenoside Rg1 (0.5 mg/mL)

| | |
|---|---|
| **Sample solutions:** | according to the monograph |
| **Standard solutions:** | in methanol |
| **Plate:** | HPTLC, Si 60 |
| **Saturation time:** | 20 minutes |
| **Application volume:** | 2 µL, as 8-mm bands |

| | |
|---|---|
| **Relative Humidity:** | about 33% |
| **Temperature:** | 25° |
| **Developing solvent system:** | methylene chloride, dehydrated alcohol, and water (60:45:6.5) |
| **Developing distance:** | 6 cm |
| **Derivatization reagent:** | a solution of 10% sulfuric acid in alcohol |
| **Detection:** | derivatize, heat at 105º for 10 min, and examine under UV light at 366 nm |

**Thin-Layer Chromatography (Presence of Dencichine)**




**Typical HPTLC Chromatograms**

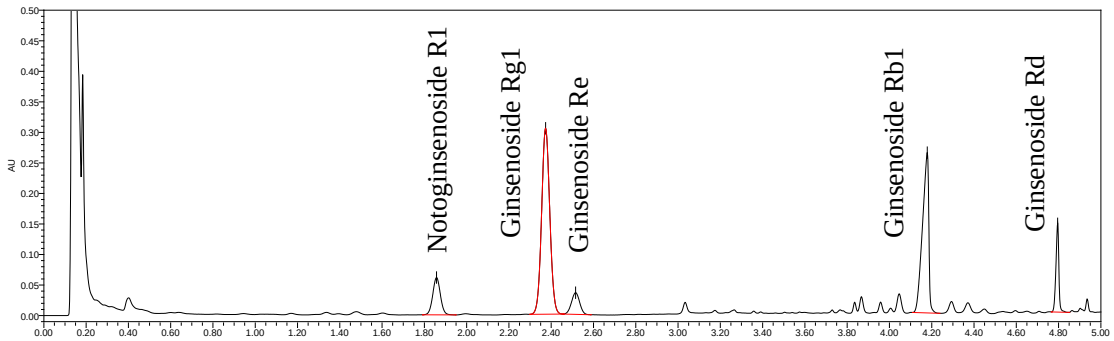
***These chromatograms are supplied for information only***

**Track assignment:** 1) dencichine (1.0 mg/mL); 2) *Panax notoginseng* Root and Rhizome, commercial samples; 3) *Panax notoginseng* Root and Rhizome *n*-butanol extract; 4) *Panax notoginseng* Root and Rhizome water layer of *n*-butanol extract; 5) *Panax notoginseng* Root and Rhizome Extract after cation-exchange resin column

| | |
|---|---|
| **Sample solutions:** | according to the monograph |
| **Standard solutions:** | in 70% methanol |
| **Plate:** | HPTLC, Si 60 |

| | |
|---|---|
| **Saturation time:** | 20 minutes |
| **Application volume:** | 2 µL, as 8-mm bands |
| **Relative Humidity:** | about 33% |
| **Temperature:** | 25° |
| **Developing solvent system:** | propanol, glacial acetic acid, and water (4:1:2) |
| **Developing distance:** | 6 cm |
| **Derivatization reagent:** | a solution of 2% ninhydrin in alcohol |
| **Detection:** | derivatize, heat at 105º for 10 min, and examine under visible light |

**UHPLC (Saponins)**




**Representative chromatogram of *Content of Saponins* in *Panax Notoginseng* Root and Rhizome**

***This chromatogram is supplied for information only***

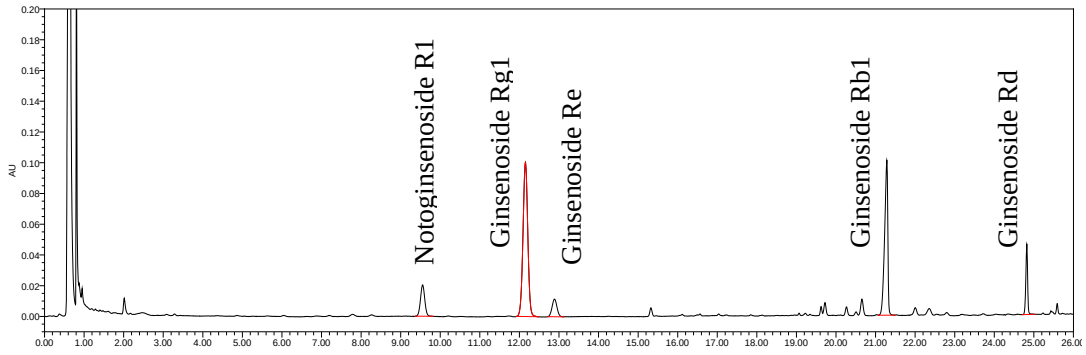
| | |
|---|---|
| **Solutions preparation:** | according to the monograph |
| **Detector:** | UV, 203 nm |
| **Column:** | 2.1-mm × 5-cm; 1.7-µm packing L1 (similar to Kinetex™ C18) |
| **Column temperature:** | 30°±1 |
| **Flow rate**: | 0.8 mL/min |
| **Injection volume:** | 5 µL |
| **Solution A:** | 0.03% phosphoric acid in water |
| **Solution B:** | acetonitrile |

**Mobile phase:** see *Table 1*

**Table 1**

| Time (min) | Solution A (%) | Solution B (%) |
|---|---|---|
| 0 | 83 | 17 |
| 2.4 | 80 | 20 |
| 3.5 | 70 | 30 |
| 4.2 | 69 | 31 |
| 5.0 | 58 | 42 |
| 5.1 | 0 | 100 |
| 6.0 | 0 | 100 |
| 6.1 | 83 | 17 |
| 7.5 | 83 | 17 |

**HPLC (Saponins)**




**Representative chromatogram of *Content of Saponins* in *Panax Notoginseng* Root and Rhizome**

***This chromatogram is supplied for information only***

**Solutions preparation:** according to the monograph

**Detector:** UV, 203 nm

**Column:** 4.6-mm × 10-cm; 2.6-µm packing L1 (similar to Kinetex™ C18 100Å)

**Column temperature:** 30°±1

**Flow rate**: 1.5 mL/min

**Injection volume:** 10 µL

**Solution A:** 0.03% phosphoric acid in water

**Solution B:** acetonitrile

**Mobile phase:** see *Table 2*

**Table 2**

| Time (min) | Solution A (%) | Solution B (%) |
|---|---|---|
| 0 | 83 | 17 |
| 12 | 80 | 20 |
| 18 | 70 | 30 |
| 22 | 69 | 31 |
| 26 | 58 | 42 |
| 27 | 0 | 100 |
| 32 | 0 | 100 |
| 33 | 83 | 17 |
| 40 | 83 | 17 |