Paclitaxel (Taxol) is an antileukemic, antitumor, or in general an antineoplastic agent. It was first isolated from the bark of the Pacific yew tree, *Taxus brevifolia*. Taxol promotes the assembly of microtubules and inhibits the tubulin disassembly or depolymerization process. The stabilization of the microtubules results in the inhibition of the normal dynamic reorganization of the microtubule network that is required for vital interphase and mitotic cellular functions. Also it induces abnormal “bundles” of microtubules throughout the cell cycle and multiple esters of microtubules during mitosis. Due to its difficult total synthesis, it is produced either by semisynthesis or from plant cell tissue. Taxol is used to treat ovarian, breast, and lung cancers. Figure 1 shows the chromatogram of Taxol using gradient analysis on a reversed-phase Hypersil ODS® column and UV detection. Many alkyl C18 columns tail with basic compounds and have a shorter life time at low pH. The Hypersil ODS column separated the basic antitumor drug and impurities with good resolution, peak shape, and efficiency. The autosampler temperature was set to 4 °C to avoid decomposition of the samples.

**Figure 1. Analysis of Paclitaxel.**

### Highlights
- The Hypersil ODS column provides unique separation and selectivities for acids, bases, and other polar compounds.
- The Hypersil ODS column provides rapid resolution and narrow peak shape for taxol.
- The Hypersil ODS column shows excellent reproducibility and retention for taxol (Figure 1).
- The HPLC method shows an easy, reliable, and precise analysis of the taxol drugs.
- The values for limit of detection (LOD), precision of retention time (RT), and peak area demonstrate the good performance of the HPLC analysis (Table 1).

### Experimental Conditions
**Equipment:** Agilent 1100 Series HPLC; **UV Detector:** Variable wavelength detector, 204 nm, standard cell; **Column:** Hypersil ODS, 5 µm, 4.0 × 125 mm (part number 7992618-564); Guard cartridges: Hypersil ODS, 5 µm, 4.0 × 4.0 mm (part number 7992618-504); **Mobile phase:** A = Water, B = acetonitrile; **Injection volume:** 5 µL; **Temp:** 25 °C; **Flow rate:** 1.0 mL/min; **Gradient:** at 0 min 50% B, at 10 min 90% B; **Column wash:** at 12 min 50% B; **Stop time:** 12 min; **Post time:** 5 min
<table>
<thead>
<tr>
<th>Compound</th>
<th>LOD for S/N = 2 (mg/L)*</th>
<th>Precision of RT (RSD of 10 runs) (100 mg/L)*</th>
<th>Precision of area (RSD of 10 runs) (100 mg/L)*</th>
<th>Linearity correlation factor (0.1–100 mg/L)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paclitaxel (Taxol)</td>
<td>0.1</td>
<td>0.07</td>
<td>0.79</td>
<td>1.00000</td>
</tr>
</tbody>
</table>

*Injection volume: 5 µL.

Udo Huber is an applications chemist based at Agilent Technologies, Waldbronn, Germany.

Adebayo Onigbinde is an applications chemist based at Agilent Technologies, Wilmington, Delaware, USA.

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