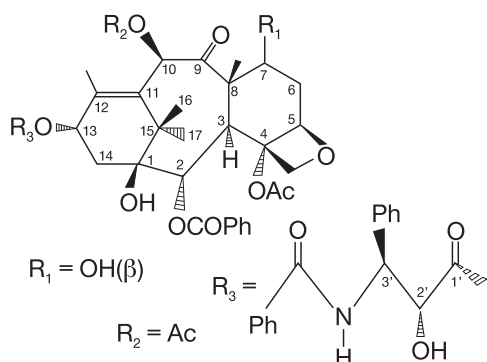


Taxol and Related Products

Taxol, also called paclitaxel, and related taxanes are complex multi-ring compounds for which reversed-phase analysis on Vydac's new 218WP C18 column for multi-ring pharmaceutical separations is ideally suited.



Subject of Interest

Originally isolated from bark of the Pacific Yew tree, *Taxus brevifolia*, taxol has engendered intense interest as an anti-cancer agent. Anti-tumor activity results from taxol's ability to stabilize microtubules and thereby inhibit mitosis. Its scarcity due to the unfavorable economics of Pacific Yew as a source, toxicity, and poor solubility have been problems. Research has focused on synthesis, potential improved natural or engineered biological sources, and evaluation of analogues for enhanced anti-tumor activity and reduced side effects. In these efforts, chromatographic analysis and purification have key roles.

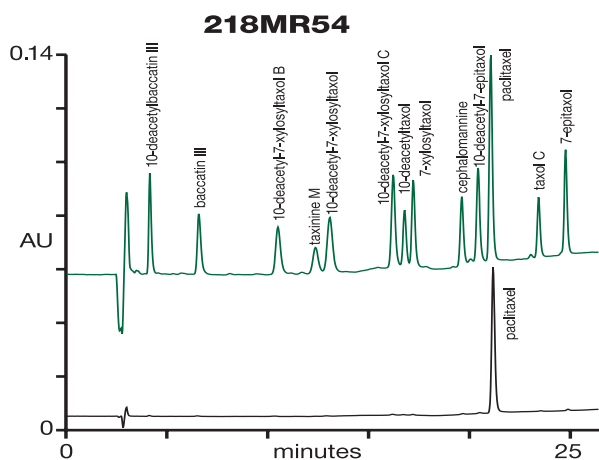


Figure 1. Separation of standard mixture and purified taxol on silica-based reversed-phase. Column: 218WP54, 4.6mm ID x 250mm L. Conditions: 1 mL/min, absorbance at 227 nm, (A=50mM NaOAc, pH 6.7, B=ACN) hold 34%B for 5 min, then linear gradients to 58%B in 16 min, and 70%B in 2 min. (Vertical scale on lower chromatogram is shown at 1/3 actual.)

Chromatographic Results

The chromatograms shown here evaluate two different Vydac reversed-phase columns for separation of paclitaxel, various analogues, and contaminants.

In Figure 1, the Vydac 218WP 300Å silica-based reversed-phase column provides excellent resolution of all 13 components in a standard mixture of taxol and taxol analogues (obtained from Hauser Chemical).

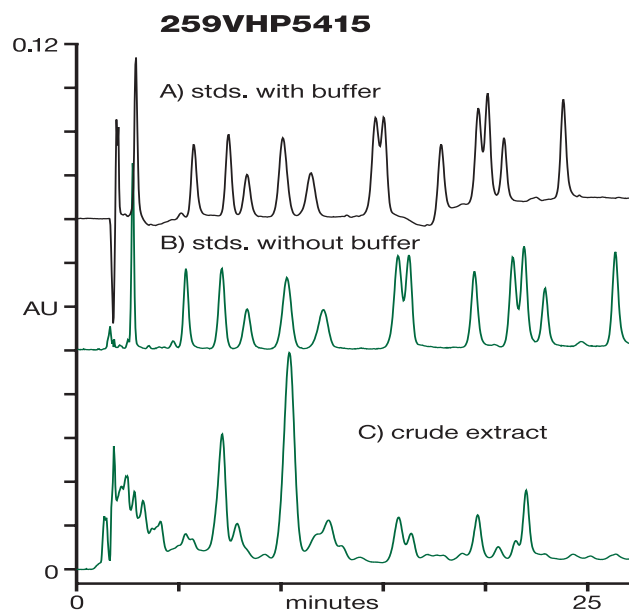


Figure 2. Standard mixture (A,B) and crude yew-bark extract (C) on polymer-based reverse-phase. Column: 259VHP5415, 4.6mm ID x 150mm L. Conditions: Same as in Figure 1, except mobile phase A = pure water for chromatograms B and C. (Vertical scale on chromatogram C is 1/3 actual.)

In Figure 2, a Vydac 259VHP polymer reversed-phase column separates the same standard mixture and a crude extract of bark from a yew tree. This column also separates the 13 components. (NOTE: A 150mm-long column was used in this work. Using a 250mm column would provide 40% more theoretical plates for these partitioning molecules.) The 259VHP polymer reversed-phase provides two distinct advantages for analysis and purification of crude samples:

- (1) Resolution does not depend on including buffer in the mobile phase.
- (2) The acid-resistant, base-resistant column can be cleaned easily to remove contaminants between runs.

Two Reversed Phases with Specific Advantages

The silica-based 218WP column is best for rapid, sensitive analyses of purified samples and synthetic mixtures. Use the 259VHP polymer reversed-phase column for crude extracts.

Ordering Information

Cat. No.	Description
Silica-Based Reversed Phase:	
218WP54	Column, Octadecyl (C18), Silica-Based, 5 μ m, 300Å, 4.6mm ID x 250mm L
Polymer Reversed Phase:	
259VHP5415	Column, Polymer Reverse-Phase, 5 μ m, 300Å, 4.6mm ID x 150mm L
259VHP54	Column, Polymer Reverse-Phase, 5 μ m, 300Å, 4.6mm ID x 250mm L

Larger diameters are available for preparative applications.

**To place an order, call The Nest Group, 800.347.6378
your local Vydac distributor.**