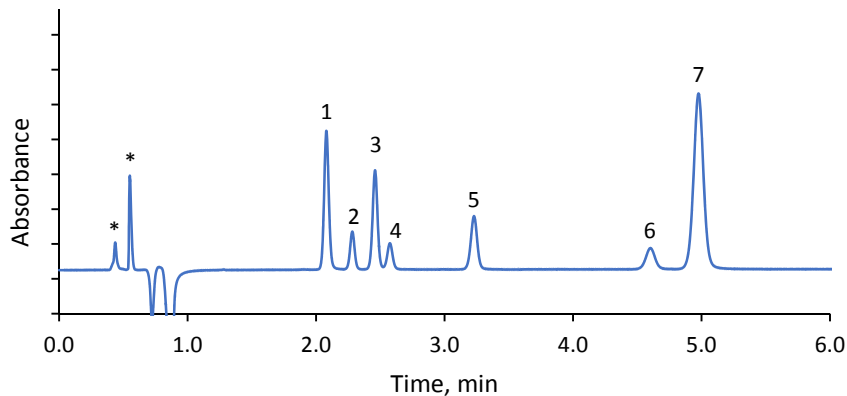


Separation of Beta Blockers on HALO® 2 µm Penta-HILIC



PEAK IDENTITIES:

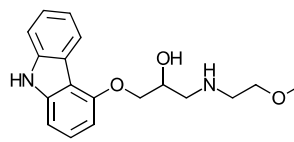
1. Carvedilol
2. Oxprenolol
3. Propranolol
4. Bisoprolol
5. Pindolol
6. Acebutolol
7. Sotalol

* artifact peaks from ammonium formate

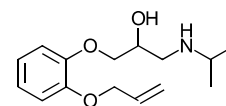
TEST CONDITIONS:

Columns: HALO 90 Å Penta-HILIC, 2 µm, 2.1 x 100mm
 Part Number: 91812-605
 Isocratic: 97/3 Acetonitrile/0.1 M Ammonium Formate, pH 3
 Flow Rate: 0.5 mL/min
 Initial Pressure: 231 bar
 Temperature: 25 °C
 Detection: 220 nm, PDA
 Injection Volume: 5 µL
 Sample Solvent: Acetonitrile
 Data Rate: 40 Hz
 Response Time: 0.025 sec.
 Flow Cell: 1 µL
 LC System: Shimadzu Nexera X2

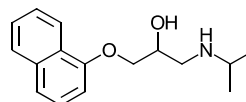
STRUCTURES



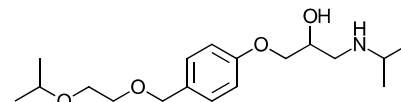
Carvedilol



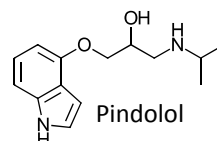
Oxprenolol



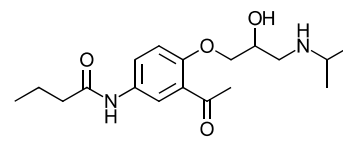
Propranolol



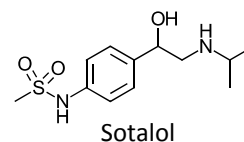
Bisoprolol



Pindolol



Acebutolol



Sotalol

A mixture of seven beta blockers is separated on a HALO® 2 µm Penta-HILIC column with excellent speed and resolution. Beta blockers are mainly used to treat irregular heartbeats or complications with the heart such as heart attacks. Beta blockers are also known to help treat high blood pressure.