# Fast UHPLC analyses of di- and tri-peptides under challenging conditions using YMC-Triart C18

Small peptides such as di- and tri-peptides often require challenging chromatographic conditions for their separation. Elevated temperature and high pH values are commonly used for such biochromatography methods. This demands highly robust stationary phases – thermally as well as chemically.

YMC-Triart C18 columns offer both: besides having a temperature stability up to 90° C they can be used over a wide pH range from 1–12. Furthermore, YMC-Triart columns are available with an UHPLC particle size of 1.9 µm which provides fast analyses with high resolution and sharp peaks.

In this application note, it is shown how small peptides, such as di- and tri-peptides, can be analysed using UHPLC conditions. As the analyses require pH values up to pH 9 and elevated temperatures, the outstanding robust YMC-Triart C18 column is an ideal choice.

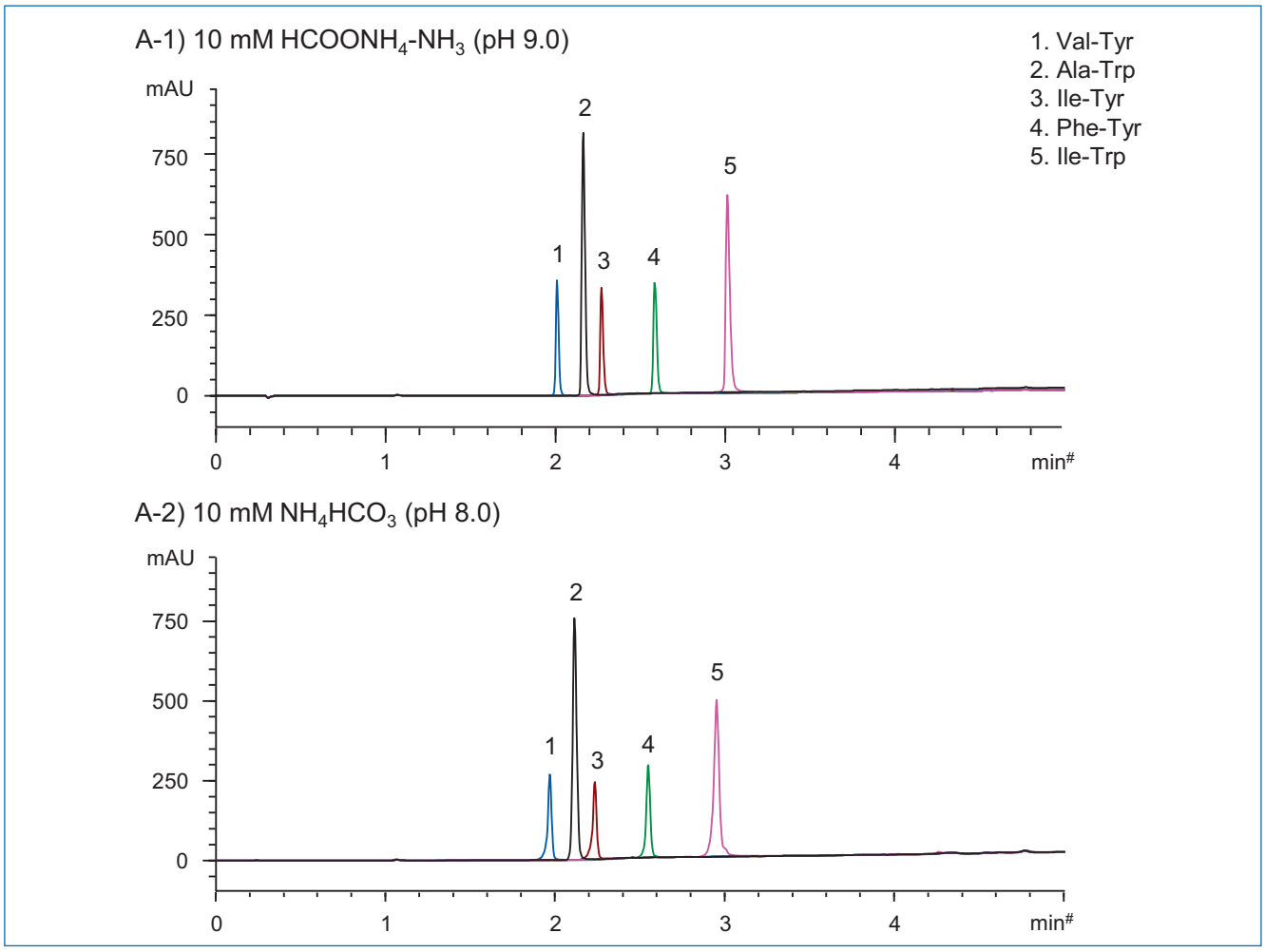


Figure 1: Chromatograms of the separation of five dipeptides using a YMC-Triart C18 column with different mobile phases and pH values.

Table 1: Chromatographic conditions for the separation of five dipeptides.

| | | | |
|---|---|---|---|
| Column: | YMC-Triart C18 (1.9 µm, 12 nm) 50 x 2.1 mm ID | Gradient: | 0–45%B (0–5 min) |
| Part No.: | TA12SP9-05Q1PT | Flow rate: | 0.4 mL/min |
| Eluent: | A-1) 10 mM $HCOONH_4$-$NH_3$ (pH 9.0) | Temperature: | 40° C |
| | A-2) 10 mM $NH_4HCO_3$ (pH 8.0) | Detection: | UV at 230 nm |
| | B) acetonitrile | Injection: | 2 µL (0.1 mg/mL) |

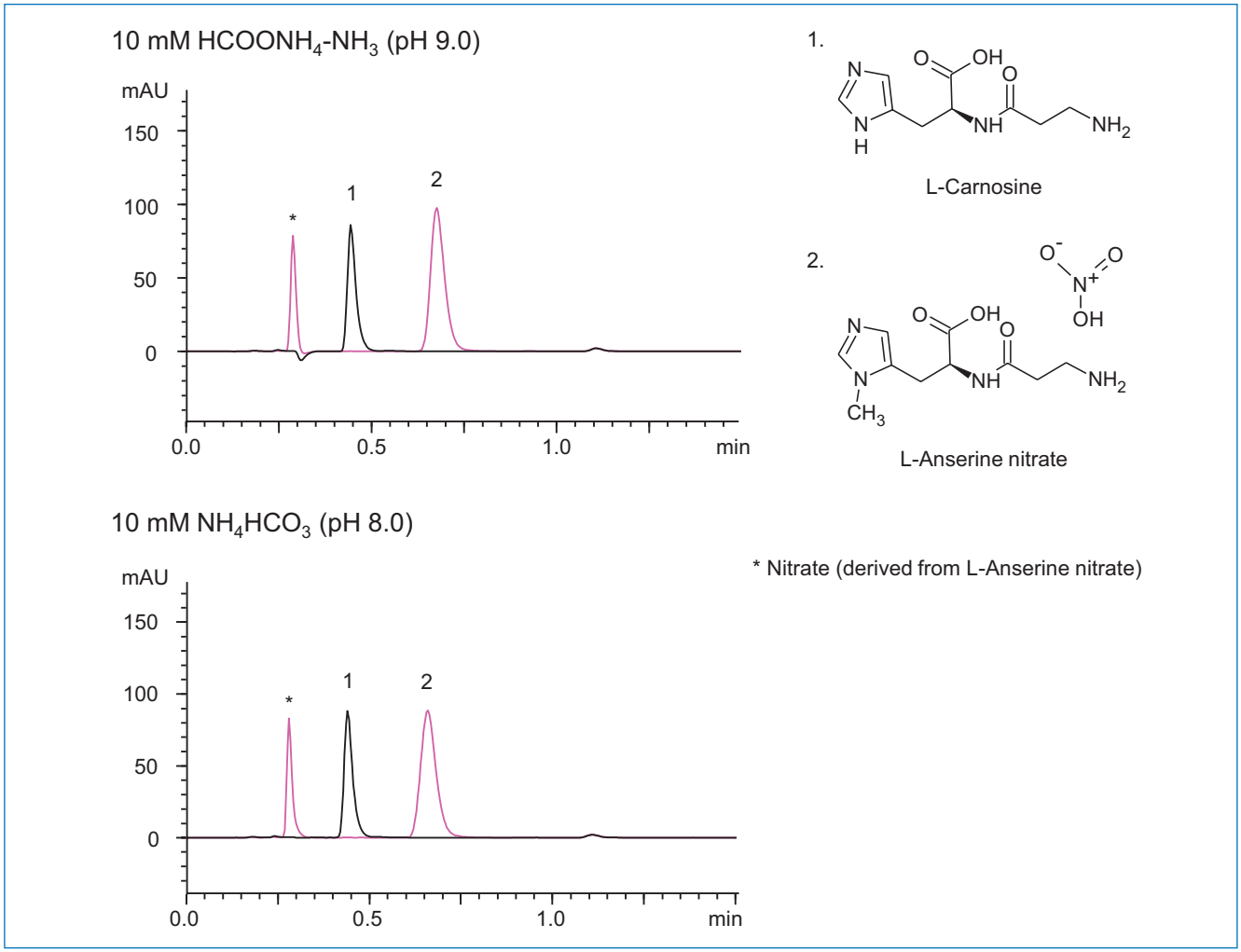


Figure 2: Chromatograms of the separation of L-carnosine and L-anserine nitrate using a YMC-Triart C18 column with different aqueous mobile phases and pH values.

Table 2: Chromatographic conditions for the separation of L-carnosine and L-anserine nitrate.

| | | | |
|---|---|---|---|
| Column: | YMC-Triart C18 (1.9 µm, 12 nm) 50 x 2.1 mm ID | Temperature: | 40° C |
| Part No.: | TA12SP9-05Q1PT | Detection: | UV at 230 nm |
| Eluent: | 10 mM $HCOONH_4$-$NH_3$ (pH 9.0) or 10 mM $NH_4HCO_3$ (pH 8.0) | Injection: | 2 µL (0.1 mg/mL) |
| Flow rate: | 0.4 mL/min | | |

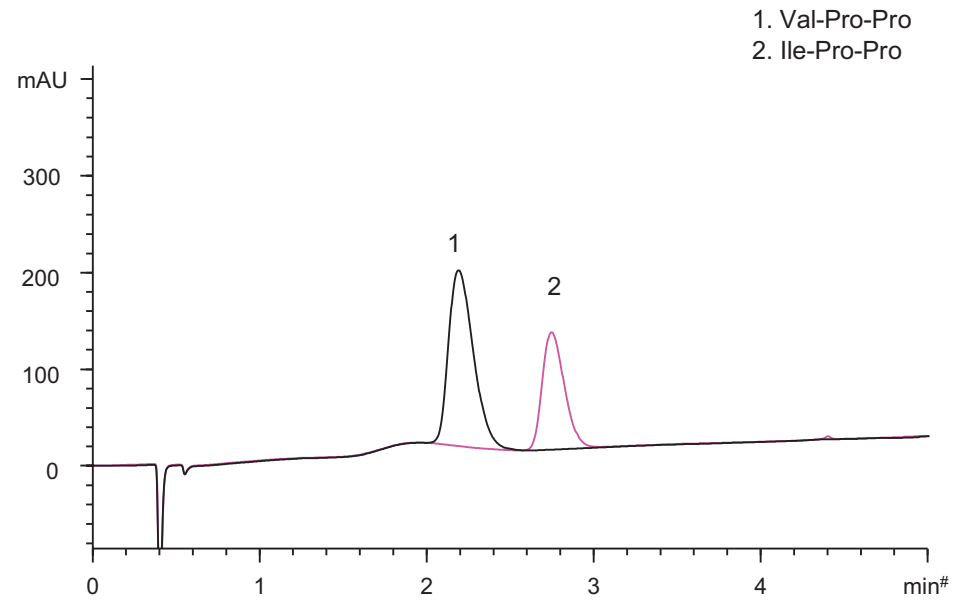


Figure 3: Chromatogram of the separation of two tripeptides using a YMC-Triart C18 column at elevated temperature.

Table 3: Chromatographic conditions for the separation of two tripeptides.

| | | | |
|---|---|---|---|
| Column: | YMC-Triart C18 (1.9 µm, 12 nm) 50 x 2.1 mm ID | Flow rate: | 0.4 mL/min |
| Part No.: | TA12SP9-05Q1PT | Temperature: | 60° C |
| Eluent: | A) water/formic acid (100/0.1) | Detection: | UV at 210 nm |
| | B) acetonitrile/formic acid (100/0.08) | Injection: | 2 µL (0.1 mg/mL) |
| Gradient: | 0–20%B (0–5 min) | | |