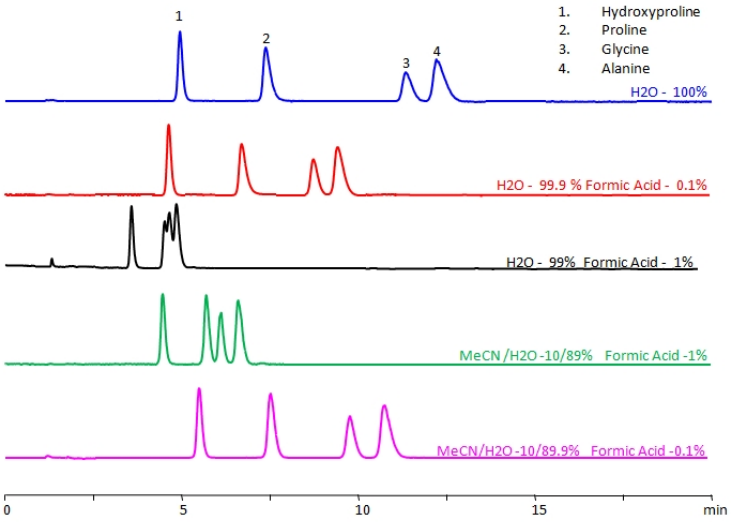
New HPLC Amino Acids Separation Compatible With Carbon Dating Technique



Column:	Newcrom AH
Column size:	4.6 × 150 mm, 5 µm
Mobile phase:	MeCN/H2O
Buffer:	Formic acid
Detection:	205 nm, CAD
Flow rate:	1.0 ml/min

High Performance Liquid Chromatography (HPLC) Method for Analysis of Proline , Glycine , D-Alanine , Alanine , Hydroxyproline .

Hydroxyproline seems to be the most promising amino acid used in carbon dating when isolated from bone collagen. Separation of amino acids is challenging, especially without the use of ions or inorganic buffers that can interfere with Mass spectrometer (MS) or contaminate the sample with modern carbon. Amino acids are also not retained in reverse-phase chromatography. The ideal solution would be using water only to separate the amino acids. This would allow a direct coupling to MS. We were able to separate hydroxyproline from proline and other simple amino acids like glycine and alanine in HPLC on Newcrom AH column using water only as a mobile phase. Using water also allowed UV detection at 205 nm which can't be done if using a buffer based on acetic or formic acid. See more information on radiocarbon dating here . The same method can be modified to get symmetrical peaks and higher efficiency if a mobile phase with ionic modifier such as formic acid is used.

You can find detailed UV spectra of Proline and information about its various lambda maxima by visiting the following link.

You can find detailed UV spectra of Glycine and information about its various lambda maxima by visiting the following link.

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Method Parameters

Column	Newcrom AH, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN/H2O
Flow Rate	1.0 mL/min
Detection	UV, 205 nm, CAD

Quelle: https://sielc.com/new-hplc-amino-acids-separation-compatible-with-carbon-dating-technique