

Food Safety Laboratory Capacity Building

Evaluation 3

- Please list two (2) strategies that use solvents only in HPLC to improve the separation of compounds
- Why is there a difference in the quality of water used between HPLC-FLD and HPLC-MS?
- Please match the terms in the three columns to describe how you may use the Actions in column 1 and parameters in column 2 to reach the outcome from column 3. Please use each parameter and outcome only once (note: there are many correct answers here)

Action	Parameter	Outcome
Increase	Column length	Improve separation
Decrease	Particle size	Shorten isocratic run
	Solvent polarity	Improve ionization
	Acidity	Reduce pressure in LC
	Column temperature	Increase sensitivity
	% organic solvent	Reduce analysis time

- We generally agree to let laboratories select the best fit-for-purpose methods for their laboratory based on performance parameters (as opposed to imposing methods). Please describe two (2) acceptance criteria that apply to a method using HPLC. (Note: your answer should list 2 acceptance criteria with real numbers, the reference for these criteria and a brief explanation of why this criteria matters)
- Please complete the sentences below by selecting one of the options and explaining why.
 - Multi-residue methods are validated using (the same / different) acceptance criteria as single residue methods
 - Analytes can be included in a multi-residue method if they have similar (polarity / pH / hydrophilicity / collision energy / miscibility)
 - The dwell time in MS (increases / decreases) when more analytes are added to a multi-residue method
 - I am in the United States. I need to perform a matrix-extension method validation to analyze spinach for pesticide residues because the multi-laboratory validation for the official method was done with lettuce (true / false)
- Please describe the difference between high resolution mass spectrometry (HRMS) and regular mass spectrometry that justifies why laboratories are using this instrumentation to screen for unknowns.
- Please list and describe three aspects of a quality assurance plan, how they are controlled and how they contribute to the assurance of the reliability of the data.