

# Consumers Don't Want Weed-Killer in Their Diet

*Herbicide / Glyphosate Testing Just Got Easier*

As consumers are demanding greater transparency in their food and nutrition labeling, and as more products come to market that contain “natural and plant-based” ingredients; finding and using the right testing methods to detect trace amounts of herbicide chemicals is critical. Among the list of herbicides consumers are concerned about, glyphosates stand out as news coverage and litigation regarding these compounds increases. Used widely on crops to control weeds, glyphosates are not only found in fresh produce and meat products; but due to their ability to disguise themselves as glycine, glyphosates are also known for making their way into a variety of other nutritional products such as proteins. Trace amounts of this pesticide can also reside heavily in collagen products and a variety of natural supplements.



Mass spectrometry (MS) coupled with both gas chromatography (GC) and liquid chromatography (LC) is needed to provide comprehensive analysis of a wide range of herbicide residues with sufficient sensitivity to meet global MRL regulations.



Dyad Labs offers complete herbicide glyphosate testing in their Utah facility serving the nutraceutical, food and personal care markets. With their in-house LC-MS/MS, GC-IR and GC-FID capabilities, these advance testing techniques can now help you screen for these chemicals with greater sensitivity than ever before. These methods are quantitative analyses, and not simply “detect / not detect.”

- ⦿ Herbicide residue analysis is a vital aspect of testing to ensure a safe supply of fresh produce to consumers. FDA regulations ensure that glyphosate residues do not exceed limits established by the U.S. Environmental Protection Agency (EPA).
- ⦿ Recently, with the advent of modern, more sensitive and rugged GC-FID and LC-MS/MS instruments, it has become possible to analyze glyphosate and its metabolites without derivatization.

# Don't Let Glyphosates Sneak Into Your Products

## THE METHODS

Glyphosate, a broad-spectrum systemic herbicide, is one of the most widely used herbicides with the signal word WARNING on the label due to its toxicological concern.

It is not easily retained on a reversed-phase HPLC, and detection by UV or fluorescence is difficult. Instead, various LC-MS assays were published for different matrices. Dyad Labs has developed a sensitive, specific and high-throughput LC/MS/MS assay for different matrices, including protein, non-protein, and botanical finished goods.



The purpose of glyphosate LC-MS / GC-FID testing is to analyze traces of glyphosate found within a product (quantitation of glyphosates). Liquid and gas chromatography testing methods allow for increased specificity and lower detection limits.

**Sample Preparation and Extraction:** About 2 g of sample was extracted with water and methanol, followed by an ultrafiltration membrane to remove interfering materials.

UPLC-MS Conditions	
<b>UPLC system</b>	Nexera UPLC system including SIL-30AC auto-sampler, controller, column heater and binary pump (SHIMADZU)
<b>Column</b>	3.0x100 mm, Acclaim™ Trinity™ Q1 3µm (Thermo Scientific)
<b>Mobile Phase A</b>	50 mM Ammonium Formate, pH 2.9
<b>Mobile Phase B</b>	Acetonitrile
<b>Flow rate</b>	0.40 mL/min
<b>Pump Gradient Cycle time</b>	10.0 minutes
<b>MS detector</b>	Triple Quadrupole 5500 MS (AB Sciex)

**Give your account manager a call today to get started.**