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# Microwave-Assisted Solvent Extraction and Analysis of Shikimic Acid from Plant Tissues

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A better method for determination of shikimate in plant tissues is needed to monitor exposure of plants to the herbicide glyphosate [*N*-(phosphonomethyl)glycine] and to screen the plant kingdom for high levels of this valuable phytochemical precursor to the pharmaceutical oseltamivir. A simple, rapid, and efficient method using microwave-assisted extraction (MWAE) with water as the extraction solvent was developed for the determination of shikimic acid in plant tissues. High performance liquid chromatography was used for the separation of shikimic acid, and chromatographic data were acquired using photodiode array detection. This MWAE technique was successful in recovering shikimic acid from a series of fortified plant tissues at more than 90% efficiency with an interference-free chromatogram. This allowed the use of lower amounts of reagents and organic solvents, reducing the use of toxic and/or hazardous chemicals, as compared to currently used methodologies. The method was used to determine the level of endogenous shikimic acid in several species of *Brachiária* and sugarcane (*Saccharum officinarum* L.) and on *B. decumbens* and soybean (*Glycine max* (L.) Merrill) after treatment with glyphosate. The method was sensitive, rapid and reliable in all cases.