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RESIDUE DETERMINATION OF A NOVEL REPELLENT ON A FOOD CROP

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Methyl Anthranilate (methyl 2-aminobenzoate) is a food and cosmetic additive that has demonstrated potential as a bird repellent. It is a Food and Drug Administration GRAS (Generally Regarded As Safe) listed compound. Methyl Anthranilate is currently being field tested as a bird repellent to reduce bird damage in blueberry fields during the ripening period. An analytical method was required to ascertain effective concentrations for bird repellency and to determine residue levels on blueberries harvested for consumption.

The blueberry samples were collected from five test sites over a 21 day period. Each test site had a control and methyl anthranilate treated area from which samples were collected and immediately frozen. The frozen samples were homogenized in the sample collection container with a hand-held food processor. Replicate aliquots were extracted with acidified water:methanol (50:50) using an ultrasonic bath. After centrifuging, 5.0 mL of the extraction solution was loaded onto a conditioned solid-phase extraction cation exchange column for cleanup, with methyl anthranilate being retained on the column. Methanolic ammonium hydroxide (1.0 mL) was used to elute methyl anthranilate resulting in a five-fold concentration. The eluant was analyzed by HPLC using a C-18 column combined with ultra-violet and fluorescence detection. Recoveries of 80% $\pm$ 8% were obtained for blueberry samples fortified at 5.0 ppm methyl anthranilate. The method limit of detection for ultra-violet and fluorescent detection was 0.03 and 0.009 μg/g methyl anthranilate.

The added sensitivity afforded by sample cleanup and preconcentration of methyl anthranilate allowed for the detection of residues for 10 to 13 days after application of the formulated repellent.