

ABSTRACT

MARY AN GODSHALL^{1*}, CASEY GRIMM², SARA MOORE¹, and REBECCA BATISTA². ¹ Sugar Processing Research Institute, Inc., 1100 Robert E. Lee Blvd., New Orleans, LA 70124, and ² Southern Regional Research Center, ARS, USDA, 1100 Robert E. Lee Blvd., New Orleans, LA 70124. **Comparison of two methods of volatile analysis for determining the causes of off-odors in white beet sugars -- SPME and headspace.**

White beet sugars periodically exhibit off-odors, which cause them to be rejected by many customers. An understanding of the nature and source of the compounds responsible will help in eventually eradicating the problems that cause them. Determining volatile substances in white sugar is challenging because the amounts present are very small, often in the sub-parts-per-million range. In this study, two methods for determining the volatiles in white beet sugar were compared. Solid Phase Micro Extraction (SPME) is a recent technique that utilizes a fine fiber coated with adsorbent material that is placed in the headspace of a sample of sugar; the fiber is subsequently desorbed into a gas chromatograph-mass spectrometer (GC/MS) for identification. Headspace analysis consists of removing a measured volume of the headspace from a sample of sugar and introducing it directly into the GC/MS. Both methods are simple, inexpensive, rapid, and do not use solvent extraction. Only a small amount of sugar is needed for the analysis. Results indicate that headspace may obtain more of the higher molecular weight volatiles and SPME the lower molecular weight volatiles.