

Title Determination of phase II mushroom (*Agaricus bisporus*) compost quality parameters by near infrared spectroscopy

Author H.S.S. Sharma, M. Kilpatrick and L. Burns

Citation J. Near Infrared Spectrosc. 8, 11-19 (2000)

Keywords: Mushrooms; *Agaricus bisporus*; pasteurized compost; thermophilic population

Abstract

The microbial and biochemical characteristics of compost prepared from wheat straw and chicken litter can determine the total yield of fruiting bodies of *Agaricus bisporus*. With the aim of identifying key substrate parameters and their relationship with mushroom yield, compost samples were obtained from four comparative trials carried out over a seven year period. The objective of this study was to assess the use of near infrared (NIR) reflectance spectroscopy for determining important characteristics of pasteurized compost. The samples were analysed for moisture content, microbial population, pH, conductivity, nitrogen, carbon and hydrogen, nitrogen, ash, ammonia, Na, Cu, Fe, acid detergent fibre, neutral detergent fibre, lignin and fibre fractions as determined by thermal analysis. Results from conventional analytical methods were correlated with NIR data and partial least squares regression analysis used to assess the information in the absorbance spectrum, which determines the concentration of the key parameters. Visible and NIR scans of the calibration samples made over the range of 400-2498 nm indicated that best calibrations could be developed using the 1100-2498 nm segment. NIR calibration equations for predicting NDM, ash, carbon, thermophilic population and fibre fractions have been successfully developed and then validated using independent samples.