

Jacquelyne R. Koch

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Mentor: Dr. Theodore P. Labuza,
Food Science and Nutrition

Assessment of Spoilage Microorganisms in Ground Beef using the *SensorfreshQ* testing device

Whenever a consumer is buying meat, the safety of the food product is of number one concern. It has been estimated that food borne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year. It is also extremely hard to determine when raw beef is unsafe. Although spoilage is easily detected by smell it may be unsafe before it spoils. Recently, there has been a new product released in the market place called the *SensorfreshQ* marketed by Food Quality Sensor International, Inc. This electronic "nose" device claims that it can measure the bacteriological activity on uncooked meat or poultry. It does this by measuring the concentration of airborne bacterial by-products present in the air right above the uncooked meat and displays the results. It operates using a three light system that determines the food's safety - a green LED means it is safe; yellow means ok, but eat within a day; and red signals that freshness is no longer assured. We tested the *SensorfreshQ* by storing ground beef at 3 temperatures, making periodic evaluation of the microbe level, smelling it, and using the instrument. Our results showed that the *SensorfreshQ* has no correlation in displaying whether the meat is spoiled (above 10^8 CFU/g). The results demonstrate that measuring the concentration of airborne bacterial by-products is not an effective method to indicate the freshness of meat or assessing the safety of the meat.



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