A202 Obtaining Investigative Forensic Information From the Analysis of Rodents in Food Products

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After attending this presentation, attendees will learn how sound scientific methodology can be used to obtain investigative information on rodent food contaminates.

This presentation will impact the forensic science community by showing how firm scientific methodology can be used to investigate food contaminates.

The purpose of this presentation is to illustrate the means and extent to which firm scientific reasoning can be applied to the examination of deceased rodents associated with food products to provide investigative information. Due to the unusual nature of such examinations, observations, and a firm scientific methodology within a sample-driven (rather than protocol-based) approach are basic tenets of such an investigation. Cases involving rodents as foreign matter generally arrive with a question such as: when did this rodent make its way into the product? Initial observations, made as soon as possible, can be critical to the investigation. Documentation of how the sample arrived and its condition are facts that have made major impacts on the ultimate conclusions. The consumer's story and timeline can also serve as helpful guides and be used to form testable hypotheses during the sample evaluation.

Generally, submitted samples have undergone an initial "identification" by a non-scientist (typically a consumer). This can lead to misidentification as well as escalated concerns over health and/or safety. It behooves the scientist to start any analysis by confirming or disproving the initial identification. Once the presence of an animal or animal tissue has been confirmed, many avenues can be pursued to identify it as a rodent. If hair is present, it can be classified and sourced to a particular type of animal; however, animal hair identification is not

always species specific. Bones and dentition can help determine or place constraints on size, age, and type of animal. Gross morphology of the sample can be very useful for the classification of the animal. However, in some instances, only part of the animal is received and only limited information can be ascertained. Speciation of an animal can help determine if the product in which they were found is a potential material they would consume. Determination of species can also lead to information on where the animal resides and if it lives in the same area as the production facility or consumer.

If the food container is received, the container and its contents can be examined. The container can be observed for scratches and bite marks that would indicate a live rodent was present. When possible, the food stuffs can be screened for hair, urine, and feces. These observations can all help to determine if an animal had been in the food container when it was alive.

As in a human autopsy, a necropsy can give valuable information about how and when the rodent died. The type of food stuff in which the rodent was found needs to be considered prior to necropsy in order to allow the veterinarian to consider the environmental conditions present when making their determination. If the rodent is alleged to be found in a liquid, the lungs need to be examined to determine if it drowned in the specific liquid. The cause of death can be a crucial aspect to understanding when or how the rodent came into contact with the product. Death by emaciation, poisoning, or compression (mouse trap) are facts that indicate the rodent was not in the product prior to opening. Following necropsy, the rodent's stomach can be generally excised and the contents are examined. An understanding of food structure and food microscopy can allow identification of the contents or, at least, a comparison to the product sample. The contents are also examined for the presence (or absence) of any other material that could help place constraints on the questions of interest.

Once the analyses and observations are completed, the facts are examined to determine what conclusions can be made. **Food Contaminates, Rodents, Scientific Methology**

 ** Presenting Author*