

Food contamination essay sample

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Abstract: Although many foods contain foreign materials like solid particles, insects, parts of any insects or other animal products and hair particles as a naturally occurring constituent. Manufacturers or importers have also played a role by setting limits on certain substances and developing mitigation procedures for presence of such foreign materials on fresh vegetables and fruits. Regardless of measures taken by regulators and food producer to protect consumers from such foreign materials, consumption of small levels of this material is unavoidable.

The purpose of this experiment to provide an overview of some of the foreign materials present in fresh broccoli. presence of light filth in fresh broccoli has been observed by taking weighed samples of fresh broccoli in boiling water. similar experiment has been performed by taking fresh broccoli in boiling water containing lead acetate and acetic acid in a measured quantity. light filth present in broccoli samples has been forced to float out from broccoli by adding specific quantity of heptane.

Organic solvent separated from mixture and filtered through filter paper. The filter paper has been observed under microscope to check presence of any foreign materials or insects. wing has been found in broccoli prepared with water but there is no foreign materials found in broccoli treated with lead acetate and acetic acid. According to standard permissible limits for thrips or mites, the sample observed in laboratory is found well within the allowable limit.

Introduction:

Unfortunately, from last decades infestation of insects in fruits and vegetables are more prevalent. Quality and safety of food is very important for any food manufacturing company and farmers to stay in the market. Even though there is a specific acceptance criteria for any food contaminations in fresh vegetables or any food products by the Government. Any food contaminations like insects or insect parts cause harmful effect to consumers health and also some microbial contamination cause infectious diseases.

Farmers use pesticides to control insect infestation but some pesticides compromise the health of consumers. Government allow only specific pesticides to use in market and which need to be in a certain proportion. There is a different stage to reach food to the consumers. Food contamination also occurs by any physical fragments or hair particles or metal during transportation, packing and labeling of food products. pesticides can't prevent it.

There is an acceptance criteria by USDA (United state department of agriculture) for various frozen or proceed vegetables. Regulators will allow up to 60 Thrips, Aphids and insects in 3. 6 OZ bag of frozen broccoli. Some insects or insect parts can't visible by naked eyes so we need specific processes to find out from food products. So, Food analysis is an important part for any food companies and by that analyst can find out any naturally occurring insects or Thrips, Aphids, wings, or any rodent particles from food products.

Here, we are doing light filth analysis by Wildman method. The main reason to carry out this experiment is we can find out any aphids, thrips, rodent particles and hair particles from frozen broccoli. This experiment involves guidelines of Canadian food inspection agency. we are using different chemicals to separate out from broccoli parts. heptane used to separate out light filth by floating from oil aqueous solution. some insects can't survive in a acidic environment so we used acetic acid and also lead acetate.

Apparatus:

Weighing machine

20x-30x wide field microscope

Heating plate

Materials:

Fresh broccoli (100gm)

Volumetric flask(2000ml)

Plunger

Beaker

Graduated cylinder

Buchner funnel

Vacuum pump

Ruled filter paper

Reagents:

Lead acetate

Acetic acid

Heptane

Anti-foam agent

Method:

1A: For insect analysis

weigh 100 gm of broccoli and cut into small pieces. put the broccoli into 500ml boiling water into 2000ml erlenmeyer flask for 15 minute. Use anti-foaming agent to prevent foam.

1B: For Aphids and thrips analysis:

Boil 100 gm of broccoli with 25gm of lead acetate and 10ml acetic acid into 500ml boiling water in 2000 ml erlenmeyer flask for 15 minute. to control foaming add a small amount of anti-foaming agent.

Add 35 ml of heptane to the above flasks. Tilt the flask at a 45° angle and mix with a plunger for two or three minutes. Avoid beating in any air or churning the mixture.

Add sufficient Deaerated water to bring the solution level up to the neck of the flask and allow to stand for about 30 minutes.

Rotate the plunger slightly to clear any vegetable debris that may be floating at the interface of water and heptane.

Decant the trapped heptane layer into a beaker. Filter the trapped off heptane-water solution using a Buchner funnel lined with ruled filter paper.

Use a 20x-30x wide field microscope and adequate light and observe insects, filths and any insect parts.

Results:

Procedure 1A:

Groups who follows this procedure they found wings in a wide field microscope. Any insects can stick into organic layer of heptane and floated so we can easily find it in wide field microscope.

Procedure 1B:

We couldn't find any aphids and thrips or any foreign materials in broccoli. There are many reasons for improper reason such as quantity of reagent used, lack of follow procedure as written, quality of broccoli used, filter paper and solvents.

Discussion:

Foreign material includes any metal, glass particle or animal and insect filths such as hair, whole or part of insects, excreta and microorganism. Any chemical or physical contamination can happen during processing of food, transportation, labeling and packaging of food. If this kind of foreign material consumed by any personnel, it causes illness or diseases. so, it is important to carry out food inspection analysis before it reach to market. Any foreign materials need to be in a permissible amount and every food companies and farmers has to follow the allowable limit for their good quality of food products.

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