

# [Foreign materials in food products essay sample](https://assignbuster.com/foreign-materials-in-food-products-essay-sample/)

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In order to guarantee excellent quality standards in food products and fresh vegetables, particular attention must be paid to the presence of foreign matter, like solid particles, soil matter, insects or any other impurities of animal origin. The light filth method is a suitable and convenient way to detect any presence of insects and light solid impurities by separating them form vegetables using partition gradient between water and organic solvent. Fresh broccoli sample of weighed quantity was treated with boiling water for specified time.

Other sample fresh broccoli was treated with boiling water containing mixture of measured quantities of Lead acetate and Acetic acid. Addition of heptane to these solutions makes light filth and insect matter to come out from the broccoli and float on organic layer. Organic decant is filtered through filter paper and presence of foreign material has been observed under microscope. Presence of thrips and hairy material observed for the sample treated with water only, while there no such foreign material or insects observed in other sample treated with lead acetate and acetic acid.

Thus, according to standard permissible limits of thrips in fresh broccoli, the samples observed here in falls within that limits and can be acceptable for human consumption. Introduction: Analysis for foreign matter is important in both selection of raw material for food manufacturing and in monitoring the quality of processed foods. The presence of such material in food products is unpleasant and can cause a serious health hazard to the consumer. The main reason for carrying out analyses for foreign materials in food is to ensure the protection of consumers from harmful or filthy food products.

The analysis of filth test allows to detect and count light solid impurities of mineral, vegetable or animal origin, and gives information about food preparation. The light-filth method pays particular attention to extraneous particles contaminating food such as insects, insect fragments, rodent or other particles. It allows identification of the material from which they have originated, animals or vegetables. Many assume that farmers and companies take proper precautionary measures to ensure that their fruits and vegetables are insects-free.

This assumption may seem reasonable but not in most cases. The FDA tolerance levels of insect infestation in fruits and fresh vegetables are far more permissive for example the United States government allows averages of up to 60 insects per 100 grams in frozen broccoli. Although farmers will use pesticides to limit insect infestation levels of crops, the effects are often limited. Powerful and highly effective insecticides used have been legally banned because of health risks.

Some insects have also developed resistance to certain pesticides over time. Vegetables with cracks and crevices are more likely to suffer from infestation, since there are areas for insects to become trapped or hide. Since fresh and frozen broccoli is consumed widely in north America, processes should be carried out to confirm that field insect fragments and unidentified insects are not more than particular limit. So, the aim of the experiment is to examine the light filth analysis of fresh broccoli using Wildman method for aphids and thrips.

Lead acetate used in the test serves as a poison for some of the insect species while acetic acid used in the experiment lowers the pH of solution making it difficult to survive for some insects. Heptane being lighter than water entraps into broccoli crevices and makes the foreign material to float out on the organic layer. Materials and Apparatus: Fresh Broccoli (200 gm), Weighing balance, Beakers Erlenmeyer Flask and plunger, Heating plate, Buchner funnel 20x-30x wide-field microscope, Ruled filter paper Reagents: Lead Acetate Acetic acid Heptane

Anti-foam agent Method: For part 1A: Boil 100gm fresh broccoli in 500ml water in Erlenmeyer flask for 15 min. Add small amount of anti-foaming agent into it to prevent foaming. For part 1B: Boil 100gm of fresh broccoli in 500ml hot water in Erlenmeyer flask containing 25gm Lead acetate and 10ml Acetic acid. Add small amount of anti-foaming agent and boil for 15 minutes. To the above flasks, add 35ml heptane by tilting them at 45-degree angle. Move plunger disc below the liquid surface and mix them using short strokes without entrapping any air into it.

Add water slowly to bring level up to the neck of flask and allow to stand it for 30 minutes. Rotate the plunger slowly to clear debris floating at heptane-water interface. Decant the heptane layer into beaker and filter it using Buchner funnel lined with ruled filter paper. Observe the filer paper for any light filth or insect presence on it. Use wide-field microscope to check presence of fragments of insects or hairy materials. Results: Thrip (picture 1) has been found in one of the sample examined for light filth presence and some hairy material was also found in the same sample treated with water only.

The group that followed the procedure involving treatment with Lead acetate and Acetic acid has found rodent hair (picture 2) only but no aphids or thrips observed in that particular sample.  Thrip found in sample: Hairy material found in sample Discussion: The presence of insects or insect fragments in in fruits and vegetable products suggests a possible contamination from the field, or contamination during the storage of products and finally as contamination during products processing. However, number of such foreign material in vegetative products is very restrictive to infested products with zero tolerance.

It would be necessary to test fruits and leafy vegetables in order to safeguard the health of consumer and to guarantee compliance of permissible limits for presence of such foreign materials in foodstuffs.

Reference:

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