



# A Guide to Controlling Bacterial Pathogens in Fresh-cut Fruits

- Anthonia H. Andoh-Odoom & Nina Bernice Ackah

## 1. Introduction

Fresh-cut fruits are fruits which have been washed, peeled (where necessary) and cut to reduce their size for easy consumption. They are also considered as ready-to-eat foods since they need no other preparation before consumption. Somehow, fresh-cut fruits are aimed at improving fruit consumption since they are very convenient for consumers who do not want to spend time preparing the fruits before consumption. Recently, there has been an increase in the availability of these fresh-cut fruits on the Ghanaian market which indicates the preparedness of producers in satisfying consumer needs.



Despite the health benefits of fruits consumption, fresh-whole or fresh-cut fruits are high-risk foods which may be sources of food poisoning/intoxication. Fruits have the potential to become contaminated if they are improperly prepared, processed, or handled. To reduce food borne illness, people who process fresh cut fruits need to be careful in order to avoid contaminating it since further cooking is not required before consumption. This publication provides guidelines and useful tips to help fruit processors ensure that fresh-cut fruits are safe for consumption.

## 2. Sources of bacterial contamination of fruits

Some sources of contamination of fruits before harvesting include soil, fertilizers and irrigation water which may harbour bacterial pathogens. After harvesting, handling

and transportation of the fruits may lead to microbial contamination and proliferation in the fruits. To be more specific, some postharvest practices which impact on the safety of the fruits include

- Presence of insects which can serve as vectors for foodborne pathogens
- Lack of adequately maintained toilets and hand-washing facilities for fruit handlers
- Improper sanitary and hygienic practices of fruit handlers
- Unsanitary conditions of vehicles and containers used for transport
- Temperature abuse of fruits during transport
- Contaminated processing equipment or food contact surfaces
- Presence of animal activities in food processing or preparation areas
- Contaminated water/ice used for fruit preparation
- Unclean packaging materials

## 3. Controlling Bacterial Pathogens in Fresh-cut Fruits

### ➤ When you buy the fruit

- Ensure that pests are not near fruit stalls where you buy your fruits
- Select fruits without excessive soil on the edible portion

- Select fruits which are whole and intact since bruising or cutting exposes the edible portion of the food which could potentially harbour microorganisms
- Select fruits which look wholesome without any signs of decay, off odours or discoloration
- Separate fresh fruits from raw meat, poultry, and fish products
- Ensure that fruit containers are clean for transportation
- Keep fruits at cool temperatures (<7°C)



#### ➤ After buying the fruit

- Wash hands with water and soap before handling fruits
- Use potable or treated water for washing and processing fruits
- Change the wash water often to prevent accumulation of foreign matter and microbes
- Wash fruits again with mild disinfectant. The most commonly used commercial antimicrobial intervention for fresh produce (including fruits) during processing is wash water containing 50–200 parts per million (ppm) of chlorine
- Keep fruits at cool temperatures (<7°C)
- Ensure that processing facilities are clean and free of pests

#### ➤ When cutting and packing the fruit

- Wear clean protective clothing
- Wash hands thoroughly with soap and water
- Ensure cutting knives and bowls are clean. Disinfection of cutting knives, boards and bowls can be achieved by subjecting them to a 77°C environment for at least 30 seconds after cleaning
- Avoid cracked, chipped, creviced, or dented cutting boards/bowls/knives
- Discard badly bruised or rotten fruits immediately
- Frequently clean your cutting knives, boards and bowls between cuts to avoid microbial growth and contaminating the fruit
- Use clean and sterile bags / packaging material to store cut fruit



#### ➤ During transport and sale

- Packaged cut fruit must be transported and sold under cool conditions
- Fresh-cut fruits have a shelf life of 5 days at 2-7 °C. This temperature can be achieved by packing clean ice blocks (ice made with potable water) on fruits in an ice chest/cooler and keeping the cooler closed
- After this shelf life, discard all unsold fruits