Name(s)	Project Number
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Project Title

Fast Food Fear: Statistical and Microbial Analysis of the Cleanliness of Fast Food Restaurants

Abstract

Objectives/Goals

My objective was find out which fast food chains in Orange County are the cleanest, as measured by the gum underneath their dining tables and what is the effect of waste materials commonly found in fast food restaurants (including used gum) on the cleanliness of the restaurant as measured by bacterial growth. My goal was to evaluate the cleanliness of fast food restaurants in Orange County.

Methods/Materials

I visited 50 fast food restaurants (5 chains in 10 cities) and counted the number of tables at each restaurant that had used gum stuck underneath them and calculated the percentage of tables with gum. I tabulated the data including the number of tables at the restaurant, the number accessible for evaluation, the number with gum, and the percentage with gum. I evaluated the data both by restaurant chain and by city. I then collected a sample of used gum and some ketchup and mustard packets. I divided a board into 4 sections with coins, used gum, ketchup, and mustard. After 2 weeks, I prepared 20 auger plates and swiped each section of the board 4 times. I collected 4 samples of each of the four materials on the board and left 4 prepared auger plates as control. I counted the number and types of bacteria on each of the auger plates once a day for seven days and tallied the results.

Results

Most cities averaged around 50 to 70 % of tables with used gum. Santa Ana had the highest average at 80.69%. Stanton was the cleanest with 48.52% average. Most restaurants averaged between 40 and 60 % of tables with gum. Jack in the Box was the #dirtiest# restaurant with an average of 90.78%. Taco Bell was the #cleanest# with an average of 44.29%. Of waste products found in fast food restaurants, ketchup had the most bacteria, followed by coins, then mustard, then chewed gum. Although the mustard samples started growing first and grew the highest variety of colonies, they did not grow the greatest amount of bacteria, ketchup did.

Conclusions/Discussion

I was correct that Santa Ana had the highest percentage of gum under tables but I think it may have been for different reasons than I first expected. Although I thought used gum would have the most amount of growth, it ended up having the least and ketchup had the most. Used gum is probably not the most accurate indicator of uncleanliness in restaurants. Other concerns such as waste food products (e.g., ketchup) may pose more serious health concerns.

Summary Statement

My project evaluates the cleanliness of local fast food restaurants.

Help Received

My mom drove me around to the 50 restaurants and to collect the gum and ketchup/mustard packets. My dad got the Formica boards at Home Depot.