

Microbiology lab report sauerkraut fermentation



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MICROBIOLOGY LAB REPORT/Sauerkraut fermentation

Introduction Food processing has played an important part in the food industry throughout history. Records show that in the past, procedures like cereal cookery, brewing and storage of food were widely used, and date back as far as 8000 years ago. The modern food industry also uses some of these ancient techniques to process as well as produce food, with certain improvements, using the fruits of modern technology.

Fermentation is one of those processes that are extensively used and studied as a tool in food processing and production such as the production of beer and milk, as well as its role in spoiling of various foods, such as the spoilage of wine. A key ingredient in the process of fermentation is the various microbes and yeasts that live in nature. Many of the fermented foods produced today include meat products such as cured hams and dried sausages; plant products such as pickles, olives and sauerkraut and beverages such as beer, ale and wine. It is also used in the production of breads such as sourdough and sour pumpernickel. The main types of organisms that are used in the production of fermented foods include lactic acid bacteria from the genus of *Lactobacillus*, *Leuconostoc*, *Streptococcus* and *Pediococcus*.

In producing sauerkraut, which is a typical fermented food plant product produced from cabbage, a key component is the lactic acid bacteria that exist in nature, and more particularly, the heterolactic bacteria that affect the flavor and the aroma of the food in question. An important part of the production of sauerkraut is the way the cabbage is prepared before the process of fermentation. The leaves are removed from the heads of the
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cabbages, rinsed, cleaned, shredded finely and then covered with salt which will be equal to 2-3% of the weight of the cabbage, in order to inhibit the growth of some undesirable organisms as well as to extract the sugars from the cabbage. Then the leaves are placed in an air tight container. The leaves should be tightly packed as to remove as much air as possible. The lack of air and the way the cabbage is shredded will prevent the growth of certain oxidative yeasts and molds, and the process of fermentation will be favored above the oxygen-based metabolic paths. The container will then be filled up with water in order to maximize anaerobiosis by acting as a weight on the cabbage leaves. The cabbage leaves are then left to incubate at room temperature for 4 and a half weeks.