

A New Era for the Agri-Food Industry

The use of biotechnology in the agri-food industry, one of Canada's largest industries, is likely to lead to diversification and modification of all food products, both those made from agricultural products and those obtained from other sources.

Fermentation: New uses for an ancient craft

More than 4 000 years B.C., a process of fermentation using yeast was already part of daily life. It seems that the Egyptians knew beer and wine yeasts could be used to make bread rise, but they did not understand how to control the process. Bakers and

brewers were successful in making their products only by chance.

Only after scholars such as Pasteur and Hansen published results of their discoveries at the end of the last century did fermentation cease to be the result of chance. These researchers demonstrated the action of yeasts in fermentation, and over the past few decades, research has essentially focused upon the improvement of yeast strains and the automatization of the fermentation process.

Lallemand Inc. of Montreal has contributed significantly in

changing the face of the "oldest biotechnology" in the world. Lallemand, a major producer of yeasts used in the bakery, winery, distillery and brewery markets, holds 60 per cent of the Canadian market for fresh yeast. For the past 10 years, with the development of some 15 wine yeast strains made for export purposes, Lallemand has also become one of the largest producers of wine yeast in the world.

The company is particularly interested in the development of yeast strains for specific applications. In the bakery field, for example, Lallemand is working to develop yeasts that are resistant to freezing for frozen doughs, yeasts resistant to high osmotic pressures for sweet doughs and yeasts with a high maltase activity for unsweetened doughs.

In the winemaking field, Lallemand has developed a high-performance "Double-Killer" yeast that is derived through precise genetic manipulations and does not contain any bacterial DNA. In addition, the increase in yeast strains has led Lallemand to develop more refined identification techniques.

In other respects, the application of immobilized cell techniques has significantly improved the fermentation process in sparkling wines produced by the champagne method. The immobilization of yeast in micro-bubbles of a natural polymer, such as alginate, for example, makes it possible to seed the culture medium continuously and regularly, while increasing productivity. The use of immobilized cells as biocatalysers is a new and rapidly advancing technique.



Supervisor checking the process of fermentation (fermenter measuring 120 m³).

(Lallemand Inc.)