How Louis Pasteur Beat a Beet Problem and Changed Medicine Forever

By Joe Schwarcz — March 17, 2019

Pasteur, who was then a young professor of chemistry at the University of Lille, was saddled with a problem faced by many researchers today. He needed funding and sought help from private manufacturers. They were often skeptical about the need for research but were generally won over by Pasteur's thrilling lectures and insight. "Where will you find a young man" Pasteur asked, "whose curiosity will not immediately be awakened when you put into his hands a potato, and when with that potato he may produce sugar, and with that sugar, alcohol?"

These words rang in Monsieur Bigo's ear when his beets stopped producing alcohol and he begged Pasteur to look into the problem. Nobody at the time knew anything about how sugar ferments into alcohol and Pasteur did the only thing he could think of. He took a sample from a healthy vat and put it under a microscope. A swarm of yellow globules now danced under his eye. Not only did they dance, but they also multiplied. These "yeasts" were alive and as Pasteur quickly surmised, converted sugar to alcohol. Then he examined the sick fermentation vats. Instead of yeast globules, he saw tiny rod-like things cavorting in the broth which instead of alcohol was filled with lactic acid.

Pasteur managed to transfer some of the little rod-like creatures into a clean container and showed that when they were given appropriate nutrients they multiplied! The little rods were alive and converted sugar to lactic acid. These microbes had contaminated the beet sugar vats, killed off the yeast and stopped the production of alcohol! Where had they come from? Pasteur again
correctly surmised that the microbes were present in the air. If they could lead beet sugar astray, what else could they do, Pasteur wondered? He soon answered his own question by establishing a link between microbes and human disease and changed medicine forever. All that because a French industrialist had a problem with alcohol production.

*The original McGill University OSS post can be found [here](https://www.mcgill.ca/oss/article/health-nutrition/how-louis-pasteur-beat-beet-problem-and-changed-medicine-forever) [1].*