

Reading for Butter Investigation

Can you make butter from any kind of milk?

Where does butter come from? Milk, right? But, when you go to the grocery store there is a whole cooler packed with different kinds of milk. The type of milk is based on the percentage of fat in it. The fats naturally occurring in milk are what we use to make butter. If milk is a liquid, how do we make butter (a solid)? Before refrigeration, people had to milk cows daily to have fresh milk. If you let fresh whole milk sit in the refrigerator overnight, the cream (high fat milk) will separate from the lower fat milk and float to the top (because fat is lighter than water). Cream can then be skimmed off the top, concentrating fats in less liquid. However, cream is not a solid! Milk is an oil and water combination (an emulsion), and if shaken or whipped the fat molecules tend to stick together. With enough agitation the butter fat will separate from the liquid and you will end up with butter and buttermilk.

Years ago, if you wanted creamy milk you would constantly have to shake up your milk to keep it from separating into cream and skim milk. So why doesn't the milk you now buy at the store separate? It all started with a French inventor named Auguste Gaulin, who developed a machine in the late 1800's, that broke milk's fat globules into a smaller, more uniform size that resisted separation and rising to the top. This invention, called a homogenizer, added convenience for consumers (like you) to not have to constantly shake their milk. This invention also opened up the market to offer different types of milk including 2% and skim.

But can you make butter from all these different types of milk? Would you get the same amount of butter from all the different types of milk? Would you get half as much butter from whole milk than half and half? There is one way to find out...