EPISODE NAME: Functional Foods Research at the University of Vermont

Today on Across the Fence we will see and learn about science involved in food tasting. And one of the products being taste-tested is part of the research on functional foods being done at the University of Vermont. Good afternoon and thanks for joining us; I am Judy Simpson. As consumers we are bombarded with messages about eating healthy and by the claims of food manufacturers that their product is better for us than the other guys. UVM's Nutrition and Food science Department is trying to comb through those messages and claims with classes and research into a relatively new in area called functional foods. For more were joined by Across the Fence’s Rebecca Gollin.

How food tastes is – well – a matter of taste…

Cathleen Tobin/ UVM Nutrition & Food Sciences Student - “I like thicker yogurt, so the thinner ones you could tell right away, I mean I knew I wasn't going to like them as much.”

For these University of Vermont students, how food tastes is the topic, and there’s a LOT to learn.

Nats, Almena – “fruity, usually in cheese, is a negative descriptor”

Montserrat Almena/Research Associate, UVM Nutrition & Food Sciences - “Look at the food, try to describe the appearance, color, if it has texture, or just some appealing properties to you. Also defects sometimes, and then try to you know, have a little bite, a little sip if it’s a liquid, and feel the taste, the texture, the mouth feeling, and then the aftertaste, and then try to describe what you feel.”

Kyle Bessette/ UVM Nutrition & Food Sciences Student - “…we had to know the feel, like between your fingers vs. the feel between your back teeth, and the smell of it on the outside, the smell of it on the inside, the overall appearance, whether or not there were crystals in it. The flavor, the taste, it was just, it was a lot of stuff… a lot of stuff.”

Tobin – “I think a lot of it is learning to smell food and also taste it, because you kind of, if you smell it first, you learn that you there has the same smell or a different smell than the food once you taste it…. we noticed it especially with the cheese, a lot of it has a very strong kind of displeasing smell, but then once you taste it, it actually tastes good.”
Engaging multiple senses is encouraged in this class…

Bessette – “It is sensory evaluation of food, we're learning about how companies and producers go about getting their foods tested by either professionals who have been trained in evaluating foods or consumers, their likeness, or dislike of products, and basically the whole process that goes into taking a product from beginning to store shelves.”

nats, class, Almena – “you want to study a product - which one? Before it was cheddar, now its fresh mozzarella - so you need to what? Collect a lot of samples within this variety of products.”

Almena - “The goal is to learn how to evaluate food, from liquid or solid to coffee to cheese, different products, and to learn the basic sensory tests.”

To learn those basics takes some time…

Almena - “Before the evaluation of the food per se, we do some training exercises, quite boring, very basic exercise to identify the 5 basic tastes, because some people think that oh yes, I know the taste, of course' but they are very confused about bitterness and acidity…”

Bessette – “It was a really long process, we had to do, for each of the five tastes we had to taste 10 samples of varying… densities, or concentrations, and from there we judged, 'Oh how salty is this', and you could tell some people in the class were very susceptible to salt while others could not taste it at all until you get to where it was almost all salt. But that's how you kind of get the basic idea of what each of the tastes are, and where you are on that scale.”

On this day, the students are evaluating drinkable yogurt.

Tobin – “We sampled some plain yogurt and some strawberry yogurts, there was four of them and we just tried them and kind of rated them, which one we like the best and which one we liked the least.”

Bessette - “We're just doing a consumer test, so it is the yogurt's likability to the consumers... So we don't know what the yogurts are, and we just sort of rank them on a scale of 1 to 9 for taste, and mouth feel, and overall acceptance.”

Not knowing which yogurt is which is important, because alongside the consumer products is one that is being developed right here at UVM – and it’s yogurt with a twist – researchers are experimenting with adding carbonation to it.

Jess Mateik/ Lab Assistant, UVM Nutrition & Food Sciences – “This is the carbonator stone, and the CO2 goes through here, and is pushed out of the little pores, in a way that the CO2 goes into the mixture homogenously, so there are little bubbles throughout all of the yogurt, not just to certain parts of it.”

The yogurt is being produced here, in the Functional Foods Research Lab, where UVM scientists are working on making healthy food even better.

Mingrou Guo/ Professor, UVM Nutrition & Food Sciences – “The major function of food is for
nutrition and energy, that is the major function of food we eat. But functional foods is beyond nutrition, so any food we eat will not only give us nutrition, but also may have health benefits, those foods are referred to 'functional foods'. That kind of food can help us to prevent certain kinds of chronic diseases, or…keep us healthy.”

Mateik - (nats) “In the yogurt base there's the milk, the added protein, and the inulin, which is a prebiotic, and then there is the syrup, which there is pectin and sugar…”

Functional foods are not always developed in a lab. The term can mean anything that has a positive effect on health beyond just nutrition – such as blueberries, tomatoes or broccoli, which have antioxidant and cancer fighting properties. What Dr. Guo and his team are focused on is adding beneficial properties to milk, soy and oat based products.

Guo – “70 percent of the diseases that we have are preventable.”

For Guo, providing healthier choices is a start, but what he would really like to develop is a product that will appeal to consumers enough to compete with the mainstream – adding carbonation to their drinkable yogurt is one possibility.

Guo –“The consumption of carbonated soda in this country, we drink more than 40 gallons of soda, on average, each year, each person. The drinkable carbonated yogurt we're making, or we developed, has the nutrition from milk, the functional ingredients in yogurt, and then gives people the sensation feeling of carbon dioxide.”

Feedback from the class will provide valuable information for the researchers as they continue to refine their yogurt. Guo has high hopes.

Guo – “I think the functional foods will be the foods for the future.”

Until that future comes, the best bet is to try to stay healthy the old fashioned way.

Guo – “Eat a variety of foods, eat colorful foods, eat natural foods, whole foods, and anything in moderation, and at the same time, exercise, I think you should be good.”

Creating better food in hopes of better health, the Functional Foods Lab at UVM is working on their recipe. In Burlington, I’m Rebecca Gollin with Across the Fence.

Thanks Rebecca. With me now is the Director of the Functional Foods Lab at UVM and a Professor of Nutrition and Food Sciences, Mingruo Guo. I hope I pronounced that close to the correct way? Where does the idea of functional foods come from?

Mingruo.: The term of functional foods also called nutraceuticala or medical foods but now I think most people like the name of functional foods. Functional foods--the idea was created by a group of scientists in Japan in the seventies and then in the eighties got into Europe and here in this country in the nineties. We're getting there. The functional foods actually the idea was from traditional Chinese medicine. In the traditional Chinese medicine they said the food and medicine are from the same sauce. That means food is also medicine.
Judy.: We usually think of food as just something for nutritional standpoint just to feed our bodies but this actually takes it a step further.

Mingruo.: That's right. We eat lots of food some food we do need the nutrition and energy from but we do not eat the right food it can also hurt us.

Judy.: You said on the tape that 70% of diseases are preventable?

Mingruo.: If you check the literature or publications 70% of diseases are diet related.

Judy.: No kidding. Your lab is focused on milk, soy and oatmeal-based products. Is there a particular reason for that focus?

Mingruo.: Vermont is an agriculture state. Dairy represents about 70% of agriculture and that's why we work on the milk. The reason we did some work with soy foods is because soy is a functional food it's a natural food and the U.S. is a major producer of soybeans and most of the soy products can be easily done by using new processing equipment. Now we all know oats are a functional food and carbohydrates that prevent certain diseases because oats have a high level of soluble dietary fiber. The real oats food on the market is very limited that's why we want to create more available oat-based functional foods.

Judy.: What goes into developing a product that eventually winds up in the marketplace? I know you brought some examples of some of the work that's been done that's now on the shelves.

Mingruo.: They all are on the market now. Some functional foods can be easily created some not. This yogurt that's the Oak Knoll Dairy that's plain that's the nonfat and that's drinkable yogurt from Milburn Farm for this kind of product it will take a lab a full year from the beginning to end to get it on to the shelf.

Judy.: We saw in the taping students tasting. Is that part of the development?

Mingruo.: Yes. If you want to develop a new product you must have an idea of the resources and time. The time involves ingredient selection technology development and chemical analysis and then microbiology tests to see if the food is safe. Then you want to check if the food tastes good or not so that involves sensory evaluation.

Judy.: Tell me a little bit about how popular these items have become because some of the dairies producing these are making money on these products.

Mingrou.: I think I brought three or four different products here in they are making money they do not lose any money. The reason let's say the drinkable yogurt here we have the nutrition of milk and the functional ingredients or functionality of yogurt and also a lack of drinkable why people like it because it's easy to eat just drink it; I could drink like a beverage.

Judy.: So we're trying to do is add not only probiotics and things that are good for you but also the convenience that people like when you talk about a soda or something that's easily marketable you can just grab a bottle well here you can do the same and have yogurt in there too.
Mingruo.: Just like a sports drink in the summer.

Judy.: What does the future look like for the functional food industry do you think?

Mingruo.: The market of functional foods now probably more than 100 more than a couple $100,000,000 marketed right now in 15 years 85% of foods on the market will be functional that's the trend of the future.

Judy.: That puts Vermont in a good place because of all the local foods that are produced here.

Mingruo.: Vermont is in a wonderful place and in Vermont we all know it's all natural clean all the food is very healthy very clean I think we do have a good image in terms of natural foods organic foods or functional foods.

Judy.: I want to thank you for joining me today and talking about this; it's very interesting stuff.

Mingruo.: Thank you.

Judy.: That's our program for today I'm Judy Simpson will see you again next time on Across the Fence.

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