

# The Zest S13E9

**Dalia:** [00:00:00] Are scientists responding to what consumers want or are they creating products and then that becomes what we want.

**Dr. Yu Wang:** A lot of time consumers don't know what they want, or they could be easily influenced. By certain kind of things like social media.

**Dalia:** I'm Dalia Colon, and this is The Zest: citrus, seafood, Spanish flavor, and southern charm. The Zest celebrates cuisine and community in the Sunshine State today.

The science of flavor.

Why do some people love cilantro while others say it tastes like soap? How did Dubai Chocolate take the world by storm? And how are scientists using AI to determine what will crave next? Today, we'll learn the answers. When we get a preview of the fourth International Flavor Summit, it takes place March 16th to 18th.

In Orlando, the biennial event brings together leaders in the food and beverage science industries, and [00:01:00] it's open to the public. So if you're interested, check out the registration link in the show notes of this episode or on our website, the zest podcast.com. One of the presenters is You Wang. She's an associate professor of food science and human nutrition at the University of Florida's Institute of Food and Agricultural Sciences.

In this conversation, Dr. Wang answers our burning questions about flavor. I just found this so fascinating. She also discusses how she's working with Florida's citrus growers to produce better taste. Sting fruit and she explains how to break up with your favorite junk food

**Dr. Yu Wang:** flavor is so, so complicated. It's like, uh, it's not just about how we taste, you know, our tongue, like how our tongue tastes. It's kind of like a combo. There are five basic tastes like sweet, sour salt, bitter umami. And another aspect is how we smell what we smell. [00:02:00] That's our nose functions like, you know, fruity, roasted, floral, cheesy, smoky.

That's all the smell we can perceive from our foods through our nose. And another aspect is mouth. Feel the texture. And if it's crunchy, if it's, uh, creamy or smoothie, you know, those kind of mouse feel is also part of the, uh, flavor

combo. And, uh, another aspect is what we call trigeminal sensation or chemical sensation, for example, like the cooling perception or cooling effect from mint or the, the spicy hot perceptions from.

Pepper or the fizzy kind of feeling from soda. That's our, the chemical sensation we're talking about. That's one aspect of this flavor combo. There's another aspect, very, very important for our flavor perception is memory or [00:03:00] emotion that's linked to our previous experience or the history or our childhood.

So overall, this aspect is what I'm, I'm talking about the flavor combo.

**Dalia:** Wow, that's so interesting. It's funny, I remember the first time my son had, I think it was Sprite, he'd never had soda before, and he said it's too spicy. But I think the word he was looking for was fizzy, like you said. Okay. So then I wanna ask you what are some maybe flavor memories that you have that when you encounter that food again, it just brings back all those good feelings from growing up?

**Dr. Yu Wang:** Well, there is a variety, like the strawberry variety, uh, growing in Florida. I forgot the name of that variety, but when the first time I tasted, I love it. I just love it so much because it's bring the memory when I was probably seven years old, it just. Exactly like the strawberry I was tasting when I was a child and I've been like looking for that [00:04:00] specific flavor for my entire life.

And then suddenly I was like, Hey, this is my, that's like the strawberry I tasted. My mom just like bought that for me. So I love that variety. Every time I just looking for that.

**Dalia:** Oh yeah, we need to track down that, that strawberry for you then. Okay. So you, you brought up all these different factors that contribute to how we experience flavor, but then why from one person to the next, do we experience flavor differently?

Like a lot of people love Doritos. I can't stand Doritos, but I love cheese and I love corn. And if you break it down, I love all the different components, but I don't love a Dorito. So what's going on there?

**Dr. Yu Wang:** Well, that could be like many, uh, uh, reasons. And first thing is a genetic reason. Some people are very sensitive.

So certain kind of things. I don't know if you heard about this concept. Super taster, taster and non taster. So, uh, among our populations about. 25% [00:05:00] of our population, they're super taster because they're genetic and they have a high density of taste bud. So they are, they're more sensitive and easily overwhelmed.

And there's also like the majority is like 50% of the population, they're taster. So they have probably proper size of the, uh. Or the amount of taste, but, so they could perceive all the different flavors or taste, but uh, it's not like they, they, they're not that sensitive to, compared to the super taster.

They're also a 25, the rest are 25%. Those people are non taster, so they have. Density of the taste bud. So they have a higher tolerance of bitterness or certain kind of flavors. So this is could be a reason. Another reason is like, you know, during like the CHO or grown up, like what we eat, the exposure time.

And some people probably they eat spicy food when they're like [00:06:00] really young and when they become adult they consider spicy food, a comfort food. But for a lot of. They would say, oh, that's so overwhelming, the spicy food. But for like your Dorito example, 'cause I don't like Dorito. The reason I don't like Dorito is because the smile.

And I think it's kind of like how your brain interpretate that smile to you. And uh, some of my friends, they like Dorito because they feel it's very cheesy and savory. But I don't like it because I feel it smells like. Powdery or stale oil. That's kind of like the smell to me, the interpretation my brain give to me.

So I don't like Dorito. There are also some texture or after tastes issues because of the seasoning or use the in Dori. Some people feel that lingering aftertaste, so they just don't like it. So it could be like many reasons, like, because you know you don't like that [00:07:00] or, yeah. So I don't know your reason.

**Dalia:** I don't know. It might be similar to yours, but we always had Doritos in the house growing up, and I buy them for my kids, but I used to take them in my lunchbox and trade them because I knew they were a valuable commodity in the cafeteria, and I could trade them for the things I actually wanted. There are some foods that I didn't like as a child or a young adult.

That I now, like, for example, olives. So how can our flavor preferences change over time? Have you experienced that at all? Either something you didn't like and now you like, or something you liked and now you don't like?

**Dr. Yu Wang:** Yes, olive. It is definitely a personal, I would say like Olive is, I never. Eat olive when I was a child.

So when the first time when I taste olive, I become a adult. It is kind of a foreign material to me. So my brain kind of like telling me, eh, that's something different, something weird. But the more when I expose, I think that's [00:08:00] kind of like a similar thing to other people or some other food. The more when you expose and uh, your brain just telling you, okay, this is not new.

This is something I already tasted from my salad or from my. Pizza so it's not new anymore. I start to tolerate that. And for olive there are also like some bitter taste. I don't know if that's, you can perceive that bitterness. 'cause our human nature is we try to avoid bitter food because that's kind of meaning toxic kind of thing in that food.

So that's like a gene or human nature. But during like the lifetime we start to eat more bitter thing like chocolate. Coffee or beer. So those like bitterness, like just like, you know, accumulates through our, uh, lifetime and then we start to have the tolerancy to the bitterness. And then that might be also reason we start to not perceive oil as a very [00:09:00] bitter thing compared to coffee.

Right. And, uh, also there's a, some. Educational experience. I would say for our brain, like for me, when I, um, start to read a lot of house benefit of Olive, uh, I read a story about some guy got cancer and in Florida, and then he decide to move back to Greek, where that's his family originally from. And then he started to plant olive and start to cook olive with all the foods there, the me cuisine, right?

And then his cancer got killed and. That's like amazing story to me. So that I think that my brain just started telling me, okay, if I eat more olive, I'm gonna have like a happy, healthy, uh, long life. So that's, I think that's kind of like educational experience. It's also like when you expose to more kind of cuisine, like meran cuisine and you experience a very delicious, well balanced me cuisine and your brain just label or attack the [00:10:00] olive as.

A delicious thing. So that's kind of like, you know, along the lifetime how your experience or your brain to telling like, you know, changing your per uh, perception or preference.

**Dalia:** Oh, that's interesting. Okay. Another question about sort of as we move through our lives, do we become less sensitive? Like, I know you said there are super tasters and then people who don't taste as much, and I've noticed this is

just anecdotal, but some of the like older people in my life are, are starting to put more salt on their food.

Like they can't taste the salt. So is that something that happens as we age, or is that just. Coincidence?

**Dr. Yu Wang:** Well, it's, uh, definitely aging. Would uh, uh. Get our, uh, sensitivity lower, but that's not like happen to all the people. You probably noticed that it's not like all the old people, they would put more salt or they eat like sweeter.

It's uh, it's aging. Play a role or certain kind of age related [00:11:00] disease, play a role. Even like, you know, the COVID cause people lost, uh, uh, smile and that. You know, they need to add more flavors to their food, to, to, to be perceived. That's kind of like, you know, the issue related to disease or even like we got a cold or flu, uh, we, we sometimes we couldn't smell that so well tasted so well.

Like that's, uh, you know, that's disease or age related, disease relevant. But, uh, for us. It is no disease relevant. I would say it is kind of like, you know, our brain to tell us our perception shift. If we're super taster, we're still super taster. It just like, you know, we, perceptions are shift. We got like a tolerant, we we just probably learn, okay, coffee, you know, we, we like that 'cause we gonna have a, a great morning or, you know, those kind of things probably would play a role.

**Dalia:** So, which one are you? Are you a super taster?

**Dr. Yu Wang:** Yeah, I'm a super taster.

**Dalia:** Ooh, interesting. So then, do [00:12:00] you eat differently than other people besides the Doritos? Are there things

**Dr. Yu Wang:** that, I mean, I'm sensitive. I'm really sensitive. I'm, uh, um, I complain a lot. Yeah. Uh, I, I would say, you know, I complain that, and people just say, I'm, I'm picky.

'cause uh, I smell something people cannot smell and I taste something other people cannot taste. But, uh. In other ways, I, I, I think I probably could enjoy more for certain kind of things.

**Dalia:** Like what?

**Dr. Yu Wang:** Like, I don't know. Even though like, you know, something is they put less sugar or it's not like the flavor is so overwhelmed, but I can still taste that difference.

I still feel that layers by layers. That's like, uh, I think I, I, I enjoy.

**Dalia:** Ooh, interesting. Okay. I wonder if I'm a super taster. 'cause I have a really good sense of smell. Like, yeah, somebody left the gas on and I smelled it from like a mile away and it turned out that the gas [00:13:00] was indeed on and then they turned it off and the house didn't catch on fire.

So, I don't know. I'll, I'll have to. I guess

**Dr. Yu Wang:** probably you are. 'cause from the question you're asking me, I feel like we're quite like similar

**Dalia:** We're we're on the same page. I love it. Yeah, we can go to dinner together. Okay, cool.

All right. So especially I think in the United States, we love loading up our food with sugar, salt, fat, you know, all the things that restaurants do to make the food taste so [00:14:00] delicious. But then when I go overseas. You know, the, the cakes are not as sweet. And for somebody like you, maybe you would enjoy that because you said you're a super taster, so you can taste those like nuances.

I was at the fair with my son a few weeks ago and they were selling sugar coated fruit, like they took fruit and they dipped it in sugar, and I'm like, but. I just liked fruit on its own. I don't even like chocolate covered strawberries because I just wanna taste the strawberry or the chocolate. Oh my God.

**Dr. Yu Wang:** Neither. I don't like

**Dalia:** that. Oh my gosh. We're the same person. This is so great. But, um. It would be great to not crave as many sweets and to not crave french fries. So how can we use all of this science to train ourselves to like healthier foods? And I'm even thinking of, you know, people with kids, it could be very frustrating trying to get them to prefer the healthier option.

**Dr. Yu Wang:** So like, 'cause uh, we talk about the flavor is kind of like a combo and this different [00:15:00] aspect could, uh. Improve or affect your overall flavor perceptions. So when you eat certain kind of like cake or, or like a

drink, you won't have a sweeter perceptions, but you can use like aroma, like what your nose can smell to enhance that instead of putting more sugars.

For example, you can put like more vanilla extract. You can put like some fresh fruit to provide that fruity kind of smell. The same time enhance the overall sweetness perceptions. So through this way it could reduce the sugar, you know, in your food or beverage. That's like one thing we could do. Another thing is.

It's like, 'cause we learn, our brain could learn step by step and, uh, we can just step down for our salt or sugar consumptions like, uh, little by little day by day. And, uh, not [00:16:00] cause any like, uh. Life miserable kind of feeling, right? So, but after like maybe a couple of months and when you start to taste your old level of sugars, you're probably gonna feel, oh, that's too much.

Okay. This is like the way we train our brain to learn or to get used to like, you know, lower sugar or salt.

**Dalia:** That's very cool. Okay. I wanna talk about some more of the science of this. 'cause this is so interesting to me. Okay. It's kind of like a chicken and egg thing. Are scientists responding to what consumers want or are they creating products?

And then that becomes what we want?

**Dr. Yu Wang:** I would say most of the time, scientists or the industry actually create things, uh, what the consumer want. That's kind of like what they, uh, you want to sell the products and if a consumer don't want it, and then with the point to create that food or flavor, it's mostly [00:17:00] like based on what consumer want, but a lot of time consumer don't know what they want or they could be easily influenced.

By certain kind of things like social media.

**Dalia:** Oh,

**Dr. Yu Wang:** or TikTok or influencer. Okay.

**Dalia:** Say more about that. Because I have kids and I'm like, do you really want that? Or did the internet just tell you that you want that? Yeah.

**Dr. Yu Wang:** Yeah, exactly. That's kind of like, you know, those before, like before the social media time.

Uh, you know, we probably know. Even though we have some conflict, 'cause we always want something sweeter, but we also want something healthier. So that's kind of like a conflict, right? But the scientists could work on that to focus on like the sweet enhancer or sweeteners to replace the sugar, still provide the perceptions, but uh, you know, lower the sugar content.

But like. The influencer or the social media is sometimes it's really hard to predict. This is all why now the flavor industry or the [00:18:00] food industry start to integrate the AI into their product development or marketing, you know, learning.

**Dalia:** Yeah. Okay. I'm glad you brought up ai. How are scientists using AI in the food and beverage space?

Are they collecting information on me and they're gonna tell me what I want in a year? How does that work?

**Dr. Yu Wang:** Well, it's not like, well, it's, it's, I would say because the data they collect that. Probably from their sales data. That's one thing. 'cause that definitely they know, like the sale from, from a a, a specific product or a flavor.

They also collect data from social media that's kind of like, you know, public to everyone. If you. Left, uh, comments or, or you have a blog or you have something there that's kind of like the data the industry are collecting. They also have the, uh, in-house test or the marketing test in a specific region and just ask a consumer to, you know, taste it and give some [00:19:00] feedback.

That's also another way for them to collect data, is to understand the performance of our products or to understand the market.

**Dalia:** So what are some flavors that maybe, I don't even know I want yet that we'll be seeing on the shelves?

**Dr. Yu Wang:** Have you ever tasted Dubai chocolate?

**Dalia:** Yes.

**Dr. Yu Wang:** Do you like it?

**Dalia:** I do.

**Dr. Yu Wang:** But did you know it like five years ago?

**Dalia:** No.

**Dr. Yu Wang:** Yeah. That's the thing. The Dubai chocolate actually started from a TikTok clip and then this become a viral, no one knows it's gonna become, you know, a saying in the market, but now it's everywhere. I still remember, you know, the first time whole Food carried the Dubai chocolate and you just couldn't find that product on the shelf.

It just, it's gone. The first day when they launch. And uh, yeah, that's kind of like, you know, the, uh, the market right now. You're probably gonna experience something in the future, but that's probably start from an influencer or it start from [00:20:00] some crazy TikTok clip.

**Dalia:** Wow. So my 13-year-old can actually tell us what we will all be eating in the future because she's on her phone like all the time.

So what's the new Dubai Chocolate? And by the way, I like Dubai chocolate, but when you say that it sounds creepy and that makes me not want it.

**Dr. Yu Wang:** Well, a lot of times the food could be influenced by other culture or uh, uh, a different market or different regions. And uh, that's another thing, like we are using AI probably to do the transfer learning.

Transfer study. Like this may be popular, let's just say in China or in Taiwan or in Japan. Like in Japan. I don't know if you taste them. Mocha chocolate. That's like a long time ago. Like you know the green tea chocolate? Oh yeah. Or green tea. Or even like Starbucks had that green tea latte.

**Dalia:** Yes. Everything was matcha for a while.

**Dr. Yu Wang:** Yeah. Yeah. The matcha, the green tea latte kind of [00:21:00] thing. That's. Originally, you know, that's, uh, you know, that idea probably I think is from like Japan. 'cause they have, everything is matcha, everything is grain tea. It tastes so good. This is kind of like, you know, we learn from a different culture, a different market, and then we transfer that to uh, you know, like North American, those market.

It's become like. Very popular. And the Kpop thing right now, the Korea culture and the Korean food, our flavor is so popular.

**Dalia:** Wow. Okay. I wanna bring it all the way back from, uh, Korea back to Florida. 'cause I know you've been working with the citrus growers here. Mm-hmm. We've had citrus greening and a lot of problems with the citrus industry.

So how are you working with them to improve the flavor of Florida citrus?

**Dr. Yu Wang:** So the first thing is we always study our consumers. So, 'cause we are looking for like what they're looking for. So we provide that information to our growers, to our processors, to like the citrus industry. [00:22:00] Just make sure when we create some new varieties or when we create some new products, it's definitely gonna meet the marketing demand or the consumer preference.

That's the first thing. And then the second thing is like, uh, we need to. Then the mechanism behind the consumer preference. For example, like we once run, uh, uh, a citrus variety selections and, uh, like to collect data from our consumers. They are just like some specific variety. Always have the high list, the consumer preference, and then we dig more.

And when we find out the reason for that is because most of our consumers like that because of the freshness. It's not because it tastes sweet, it's just because it tastes so fresh. Then the question to us is what that freshness is. So we can say that's very fresh, but how can we translate that information into breeding or into chemistry?

So then we study what chemical [00:23:00] compounds actually related to that freshness our consumer described. Then we study what kind of gene actually related to that chemical representing freshness. Then the breeders can integrate that information into the new breeding varieties and which carry the consumer like the freshness.

So this is like, you know, the science work, uh, related to, you know, citrus.

**Dalia:** That is wild. I was just drinking lemon tea that I made with fresh lemons and I had no idea everything that was happening behind the scenes. I just think that's fascinating. Okay. Before I let you go, I wanna ask you about some more of your favorite and least favorite flavors.

We, we know you don't like Doritos, and I'm with you on that and, and you love that particular strawberry. What are some of your favorite flavors and maybe some of your favorite Florida flavors?

**Dr. Yu Wang:** Well, citrus, like, you know, lemon, that's lemon. Freshness is always like all the, if [00:24:00] you are, say, in Florida always like the, the blooming season, you know, when the citrus is blooming.

And I love that smile. It's kind of, it's so sweet. And so bring all the happiness together. Yeah. And, uh, uh, I like strawberry, blueberry, uh, those fresh produce. I, I always love them. Chocolate. But like for the list of flavor? Mm-hmm. I, I don't think I have some list of flavor. I just sometimes don't like some flavor just because it's not what I expected.

**Dalia:** Hmm. Yeah, I get that little surprise. Okay. Yeah. So the, the flavor Summit is coming up. Are you presenting at the event?

**Dr. Yu Wang:** Yes. I have a talk there to talk about some newly technology we just developed, uh, for the flavor analysis and for the product development by using ai.

**Dalia:** Very cool. Okay, Dr. Wang, this was fascinating.

Is there anything else you want us to know?

**Dr. Yu Wang:** Uh, I think you ask a lot of good questions and now I [00:25:00] find out we actually are similar on the flavor perception. So yeah. I mean, yeah. Thank you so much for your time and, uh, I think one thing I, I really wanna talk about is, 'cause uh, we, I talk about, I'm picky. My mom complained, I'm picky.

I, I think a lot of people probably always explain the same thing. They're, they don't like some flavors. I mean, I just want. Everybody know that's okay. That's actually very normal. That's probably our, how our gene work, how our, you know, experience work that's very normal, so we can just enjoy whatever flavor we'd like.

So that's the best part of our life.

**Dalia:** It is. Okay. Well I'm gonna. Try to track down some Dubai chocolate. 'cause you made me hungry. This was so much fun. Thank you so much for your time.

**Dr. Yu Wang:** Yeah, no problem. So thank you.

**Dalia:** Dr. Yu Wang is Associate Professor of Food Science and Human Nutrition at the University of Florida's Institute of Food and Agricultural Sciences. She's also one of the presenters at the Fourth [00:26:00] International Flavor Summit taking place in Orlando, March 16th to 18th. Yes, it is open to the public and you can find all the details on how to register in the show. Notes of this episode or on our website, [thezestpodcast.com](http://thezestpodcast.com).

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