Careers in Green Chemistry and Sustainable Design

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[00:00:00] Hi, I'm Jem. I'm the analytical chemist here at Tidal Vision, and I've been working in green chemistry for about five years now. As an analytical chemist at Tidal Vision, I support the research and development of chitosan based products here in the lab, and that can be anything from conducting hands on experiments, um, to running the instruments and collecting data of samples from my co workers.

[00:00:39] I choose to work in the field of green chemistry because I want to make sure that my small time on earth out of the millions and millions of years that the earth has been, um, here, I want to make sure that my time here is positive and impactful in a good way.

[00:01:02] Utilizing a waste product is imperative for sustainability. By using waste Produced by the seafood industry, we're giving a second life to that waste material rather than just using it once and tossing it. So much waste is produced by the seafood industry and only a small percentage of crabs and lobsters is, is the meat used.

[00:01:26] It's only, I think it's only like 20 to 30 percent of the actual crap. And so it's, that 70 percent is waste. So instead of making the landfills more full, we're taking that waste and making it into something more useful.

[00:01:46] Chitin is in the cell walls of insects, fungi, and algaes. So because chitin is so abundant. It's been researched a lot and due to all that research people have found a lot of different applications for it. Chitosan, which comes from chitin, is a carbohydrate and that carbohydrate or chitosan is just made up of a long chain of sugar molecules that can be degraded in nature and digested.

[00:02:15] Chitosan is commonly used in water treatment, agriculture, and material science, all of which affect us daily.

[00:02:29] I took a bunch of science classes in high school. I had an amazing chemistry teacher, so then I joined AP Chemistry. Which was a lot of work, but it was really fun. But when the AP chemistry tests came around, I failed it, flunked it, got zero credits for that. Um, but my chemistry teacher encouraged me. So, you know, just keep going.

[00:02:57] Then I went into college, I had no idea what I wanted to do with my life, because there's just so many options. But because I still had to take my general, uh, credits, I chose chemistry, because I took chemistry in high school. And chemistry in college was, it was fun. It was hard, but it was fun. I, I failed a few classes here and there, but with the support from my peers and my professors, I was able to pass the classes.

[00:03:22] After getting my undergraduate degree and being in a research group for two years, I got my master's degree at the same school.

[00:03:38] You can only get so much in a chemistry class. Um, so joining a research group in college, uh, gave me a ton of opportunities to learn something that I wouldn't... I usually learn in the classroom. I researched silk, um, which is a super common textile in, uh, that we use every day as sutures, as gels, as basically everywhere.

[00:04:05] I learned a lot about how to characterize it, which gave me the skills that I needed to work at Tidal Vision as an analytical chemist. I think my most significant achievement in my work is contributing to the greater understanding of biopolymers, whether that's silk or chitosan. Um, I remember my research group, we published a paper together and it was on something that nobody had done before.

[00:04:36] So it was cool knowing that, hey, me and my group researched this and we're adding to the plethora of knowledge out there.