

Sawbones 366: Oleander

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Clint: Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax, and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

Justin: Hello everybody, and welcome to Sawbones, a marital tour of misguided medicine. I'm your cohost, Justin McElroy.

Sydnee: And I'm Sydnee McElroy.

Justin: [screechy] You know Sydnee... [laughs]

Sydnee: Oh.

Justin: In these times...

Sydnee: Your voice changing there?

Justin: Yeah, I'm just taking a little stretch, being a little, uh, you know, kinda reflecting a little bit. In these times, something that has helped me a lot is routine. I have a sugar day on Saturday, the day I eat sugar.

Sydnee: Right.

Justin: We have cleaning day the day after that. It's my most favoritest day of the week.

Sydnee: Yeah.

Justin: There's trash day.

Sydnee: It's very depressing the day that Justin comes in and starts singing, "It's the most wonderful day of the week" to me and our children, because what he's referencing is that it's the day we all have to clean.

And he's the only one in our family who enjoys cleaning. [laughs] It's just kinda sad.

Justin: Yeah, and by "we all have to clean," what Sydnee means is I will clean as they watch—as Sydnee keeps the children from killing themselves.

Sydnee: [laughs]

Justin: But anyway, you know, here's another routine that I've become very accustomed to. Um, some new dumb COVID thing is promoted by somebody.

Sydnee: [sighs] Yeah.

Justin: And then we have to, uh, sally forth on our steeds of education and science and, uh, set right what once went wrong, in the words of Dr. Sam Beckett.

Sydnee: There was this one time, one time ago, when we were on a vacation, and the place where we staying had lined the entire property with these bushes of oleander. And I remember that we had a conversation about, "Oh, they should kind of warn you, because we've got little kids and kids just eat stuff." You know, they just pop things in their mouths. And oleander is poisonous. Famously poisonous, I would say. It's a good, like, mystery novel or criminal detective—

Justin: Yeah, it's very Agatha Christie.

Sydnee: Yeah. It has that kind of feel to it, right? So, oleander is famously poisonous and, you know, they should kinda warn you, like, "By the way, we have decided to line this entire property with..."

Justin: Beautiful poison.

Sydnee: "Beautiful poisonous bushes." In case you have children. And so, that is the—I thought about that, like, phew, okay, and so when I started seeing oleander in the news, I thought, "Well this is weird. Surely people know this is poison. Like, I mean, it's a flower, it's a plant. It's lovely. But it's poison. Like, people know that, right?" And then I thought, "We already did an episode about bleach and how you shouldn't drink it, so... I guess I shouldn't be surprised?"

Justin: Yeah.

Sydnee: I guess.

Justin: Just the way of things, is right now is everybody—it's human, I think, to look for an answer that isn't the hard one. I mean, we love—I think as a species, we are built to find easy answers. It's what separates us from the... from the apes.

Sydnee: [laughs]

Justin: We humans love to, you know, hack stuff. They do too, I know they have primitive tools. And their thumbs.

Sydnee: I—hey, listen. I would not currently, especially speaking for the US, I can't speak for the rest of the world. But for the US, I would not put our species up against any other in any context right now. [laughs]

Justin: Um...

Sydnee: In terms of, like, who's doin' it better.

Justin: Yeah. That's true. I guess that's fair. I'm trying to think of a counterexample. You know...

Sydnee: So, do you wanna know why oleander has been in the news?

Justin: Giraffes aren't great.

Sydnee: What?

Justin: But I guess they're not hurting anybody.

Sydnee: Giraffes?

Justin: They just, like, look wild and they sound terrible, and...

Sydnee: Giraffes.

Justin: Giraffes.

Sydnee: I thought you said drafts.

Justin: Giraffes.

Sydnee: Like, the draft.

Justin: Sorry.

Sydnee: I was gonna say, "No, I don't—no. What?" [laughs]

Justin: Giraffes. We've all been drafted into the war against misinformation about COVID.

Sydnee: Okay, there we go.

Justin: Let's go with that.

Sydnee: Um... well, I don't—

Justin: Giraffes? Is there something with the way I say giraffes?

Sydnee: Well, you just said it all together. G'raffes.

Justin: Giraffes.

Sydnee: Like, there's a G with, like, a little apostrophe there. [laughs]

Justin: That's for people that know them well.

Sydnee: [laughs] G'raffes.

Justin: If you're well acquainted with them, you call them by their nickname, G'raffes.

Sydnee: [laughs] It would look like G. Raffe.

Justin: That's the way I've always said it. I don't know what to do.

Sydnee: Anyway, do you remember when—

Justin: That time you made me self-conscious about the way I say giraffe? Yes.

Sydnee: Well, you really threw me there, bud.

Justin: [laughs]

Sydnee: You remember when Trump had the press conference with the My Pillow guy?

Justin: [laughs] [claps]

Sydnee: It wasn't too long ago, it was like—

Justin: [laughs loudly]

Sydnee: I don't—[laughs]

Justin: Do you remember in the Bible when it says, "The Pillow King shall then lead the turnip to the truth about the plague?"

Sydnee: [laughs] For everybody who complains about how we get into current events and political events on the show, there's a big history component to this, I promise, but I have to—I have to set up why we're talking about it, and it involves Trump and the My Pillow guy. That is just—that is truth. Those are the hard facts.

Justin: And no—what I like is that as a species, or at least as a society, we've all decided we're not going to learn the My Pillow guy's name. He's just going to be the My Pillow guy. I'm sure you have it written down, but like—

Sydnee: I have his name in here.

Justin: But I have never seen him referred to as anything other than, "You know, the My Pillow guy."

Sydnee: It's a shame, because if you remember—I think the reason he was—gosh, it feels like a million years ago and also five minutes ago, all at the same time, but I think the reason for that press conference was that he was making masks. He was using his facilities to make masks. Which was a great thing. We need masks. That's fantastic. And it's a shame that My Pillow guy will not be remembered for that, at least primarily. We could also recognize that that was a great thing to do.

Justin: Yeah.

Sydnee: But in addition... Michael Lindell is his name, in case you cared.

Justin: I'm gonna stick with My Pillow guy.

Sydnee: He is friends with Ben Carson.

Justin: You know he only ever has one pillow on the shelf and people come in to buy it he's like, "Well, that's... that's my pillow. I guess I can let it, yeah, for the right price..."

Sydnee: We're never gonna— [laughs]

Justin: "You could buy it," and he puts another one up there.

Sydnee: We're never gonna get to the point. [laughs]

Justin: Okay, sorry, sorry, sorry.

Sydnee: Okay. So, he's friends with Ben Carson, you know who that is.

Justin: Mm-hmm.

Sydnee: Uh-huh. And another guy named Andrew Whitney. And the important thing is that Whitney had called Lindell, who is the My Pillow guy, back on Easter Sunday and said, "Hey, good news,"

Justin: "All the churches are filled with people, isn't it beautiful? We beat COVID." [laughs]

Sydnee: [laughs] "My company has the cure for COVID-19. But I need some face time with the president to tell him about it."

Justin: [groans]

Sydnee: So... and why Lindell? Well, according to Whitney, he's one of the country's greatest businessmen, so... obvs. So, last month, Whitney got an Oval Office meeting with the president of the United States, and Ben Carson, Secretary of the HUD, and also a neurosurgeon, which is why they say he's there, because he's a doctor.

Justin: [laughs] [whispers] Not a lot of those around anymore at the White House.

Sydnee: [laughs] Lindell was there, the My Pillow guy, and I guess the Chief of Staff was there for a little bit. To pitch his product. Which is like... as someone who watches Shark Tank, is already the weirdest thing.

Justin: Yeah.

Sydnee: Like, he walks into the Oval Office, and there's Trump, and the My Pillow guy, and Ben Carson, and I guess the Chief of Staff ducked his head in, and he was like, "Sharks," or... I don't know what we call them.

Justin: Bad people.

Sydnee: [laughs]

Justin: "Thank you for having me here today, bad people."

Sydnee: "I would like to tell you about my cure for COVID." And Trump was reportedly interested, and I don't know exactly what he said, but he said the FDA would need to approve it. And that has been like, I've seen that line interpreted two ways.

Either, like, Trump saying, "Well, I mean, the FDA would need to approve it, so we'll see," and "The FDA *needs* to approve this!" So I don't know the inflection, I wasn't there. Maybe there's a tape. Anyway, it certainly has not gotten the airtime that hydroxychloroquine did.

Justin: Yet.

Sydnee: So, he wasn't *that* enthusiastic about it.

Justin: Yeah.

Sydnee: Carson was excited about it, and Lindell was so excited that he put his money where his mouth is and invested in this company. That has made a miracle cure for COVID.

Justin: God, this is such a relief. I don't know why I'm just now hearing about this.

Sydnee: I know. So, let's talk about what this miracle cure is, why the media and the left and big pharma don't want you to know about it... [laughs] And we'll go back through the history of oleander.

Justin: Oleander. I don't know much about it, but I'm assuming it's safe and effective.

Sydnee: So, it's been known as a poison for a very long time.

Justin: Effective then, maybe.

Sydnee: The scientific name for it, nerium, nerium oleander is its full name. Nerium relates to the water, because that's—usually the plant is found near water. But the word oleander, and there's some debate as to, like, the etymology of this word, what it comes from, but there's one idea that it comes from the Greek words for "I kill" and "man", because "I kill man." [laughs]

Justin: "I kill man."

Sydnee: [laughs] Because it can kill people.

Justin: It's good. On the nose.

Sydnee: Any animal. It can kill things. Because it's a poison. While it is largely native to the Mediterranean area, a few other areas of the planet, you can find it a lot of different places today, because it's very pretty, and throughout history, humans will find a plant in one place that would make a nice ornamental, and then take it somewhere where maybe it shouldn't be, and plant it.

Justin: And then bone a bunch of stuff. [laughs]

Sydnee: [laughs] And then plant it there. So, you'll find it a lot of different places. We have seen it in, you know, the American southeast, like, beachy parts of the country. But it's lots of different places. It's very pretty, I agree. It's very pretty. Comes in a couple different colors. You can see why people would want to use it as like, hedges and things.

Justin: I don't like flowers, but yeah.

Sydnee: It's a lovely plant. It was known from the early Greeks and Roman writers as a poison to beasts, but some thought that even though it might kill some animals, it might have some applications for humans. We've always thought that, right? Something that does something might do something good. Maybe if it does something bad, it has a power, like it has a powerful enough essence, or whatever, to make something good.

Justin: The dose makes the poison, kind of thing.

Sydnee: Yes. It was said to be used in small amounts to induce hallucinations for like, the Oracle of Delphi, like priestesses and that kind of idea. Like, if you took a little nibble of an oleander leaf, it wouldn't kill you, but it would make you hallucinate, and then you could have visions.

But that's—and there's a lot of debate, and I don't wanna get hung up on this, but like, the words for, um, oleander, and actually, rhododendron, and the bay laurel, they all kind of get confused in different writings, and sometimes it's hard to know which plant exactly the writers were talking about.

Justin: Okay.

Sydnee: But oleander, we know, was known to be, like, we knew in ancient times that it was poisonous. Pliny, our friend Pliny the Elder—we haven't gotten to talk about him in a while.

Justin: Yeah, welcome back to the show, Pliny the Elder.

Sydnee: He noted that it did indeed kill animals that ate it. But he thought that it was mostly harmless to men. Could be poisonous, but usually harmless, and a good remedy for snake bites. Um... it's not, by the way.

Justin: No.

Sydnee: But that was how he recommended it in a medical sense. And it was part of, like, a recipe, by the way. Not alone, but part of a recipe to use for snake bites. Now, it's interesting, because he says, well, it kills animals, but we can use it for snake bites.

But then, later, he does talk about this story, and this is attributed to Pliny, that he wrote the story of an army that was tricked into eating oleander poison, because there was some honey from bees that had pollinated, that had visited oleander flowers, and they laid this honey out for this invading army, the other guys did, whoever the other team was... [laughs]

Justin: [laughs]

Sydnee: And the army ate—

Justin: The other team in the war.

Sydnee: The other team in the war. The army ate this honey, and then they all died from the poisoned honey from oleander. There's another story about the idea of oleander honey being poisonous from King Mithridates, who intentionally poisoned somebody this way.

It's funny – this is actually impossible. There's no way. Either they didn't understand this about oleander and it's all made up, or it was a different plant that they're talking about, not oleander, because oleander flowers have no nectar.

Justin: Mm.

Sydnee: So, this could not happen.

Justin: Take that. Encyclopedia Syd is on the case.

Sydnee: [laughs] And, you know, it's interesting. Instances of poisoning from oleander are actually pretty rare throughout history. I should say, accidental poisoning from oleander are pretty rare. For a very good reason. It apparently— the plant tastes very bad. I cannot verify this, because I will not eat oleander.

Justin: Because it is...

Sydnee: Poison.

Justin: Poison.

Sydnee: But apparently it is so bitter, that whether it be a human or another animal, when you take a bite, you are not inclined to take another. And so, there have been cases of accidental oleander poisoning, but they're pretty rare. So, these writers who are trying to talk about oleander poisoning, they probably didn't have a lot to draw from.

Justin: Okay.

Sydnee: Supposedly, and I didn't know this, I guess Cleopatra tested a lot of different poisons out on other people. [laughs]

Justin: Mm-hmm. Oh. Got it.

Sydnee: Well, before she chose which one she would use on herself, should she need to. And supposedly, this was among the poisons that she made other people try to see what the reactions—what the results would be. She was looking for something that wouldn't be too gross or ugly.

Justin: Great. Great, fantastic.

Sydnee: Oleander did not pass the test. And as we move through history, you see that oleander falls into the category with a lot of other, like... when we think of common herbal medications, as like, a lot of different areas of the world, where it grew, where people could find it, they would use it as a remedy for a variety of different things. You'll find folk remedies that are for, like, skin conditions, wound healing or eczema, that kinda thing. And it's like a topical paste that includes oleander. It's rarely used on its own.

Justin: Okay.

Sydnee: It's usually part of something, which I think reflects that people knew it was poisonous, so they were trying to, like, "Maybe if we put a little bit of it in there it'll make it..." And it was this vague idea of, like, the potency of plants, right?

Justin: Right.

Sydnee: This is potent, so we'll put a little bit of it in there, and maybe it'll make this other stuff do stuff better.

Justin: [laughs]

Sydnee: [laughs]

Justin: It's all very scientific.

Sydnee: So, you'll find inhaling the smoke from burning the leaves was a popular way of taking it for different conditions. It's been used for, in addition to skin conditions, ringworm, herpes, asthma, epilepsy, malaria, as a way to induce a spontaneous abortion, as a way to make you throw up. It's been famously used as a cancer cure in some cultures. And then the other thing is as a heart tonic. As a way to, just like... when we think about the idea of tonics as, like, things that will just improve the function of something.

Justin: Pep it up a little bit.

Sydnee: Yes. So, it has been also used by a lot of different cultures as a heart tonic. And when it comes to the heart tonic part of it, there's an interesting grain of truth in here that I think we should talk about, because, you know, and I know we get a lot of criticism on this show for saying, like... if it hasn't been proven and it's not, like, evidence-based,

then you shouldn't use it. You should use medicine that has been studied and tested and proven to be safe and effective at the same time.

And I think it's important to notice when sometimes, through like... history, when we have tried herbal things, we have noticed an effect that is true. And the heart tonic effect probably has some truth to it, as we'll get into.

Now, the plant is incredibly toxic, and that's why you can't just take one anecdotal, you know, example of the plant helping someone as evidence that we should give it to everybody. That's why it's important that we rigorously study these things. It's great to look for ideas that way, but that's all they are. They're just ideas, still.

From these different attempts to derive benefit from it, we have learned a lot about all the ways it can harm us. [laughs]

Justin: Okay, good.

Sydnee: Whether you ingest it, apply it topically, inhale it, it can harm you or kill you in all of these forms. It's absorbed through the skin. It can kill you even if you're just putting it on a wart, which is one thing it was used for.

Justin: Yikes.

Sydnee: It contains several toxic compounds that can harm you, but the chief toxin is probably oleandrin. Oleander, oleandrin is the main substance that is dangerous. And this is the substance that the My Pillow guy is taking every day.

Justin: [laughs and coughs]

Sydnee: And encouraging his family members and friends to do as well. And is the miracle cure for COVID that Andrew Whitney pitched in the Oval Office last month to the president of our country.

Justin: [groans]

Sydnee: So, I wanna talk about—

Justin: [groans]

Sydnee: [laughs] So, I wanna talk about, uh, first of all... like I said, there's some heart stuff that is actually kind of interesting. I do wanna talk about that. And I wanna talk about the research into oleandrin. But before we do that...

Justin: Ah.

Sydnee: Let's go to the billing department.

Justin: I welcome the relief. Let's go.

[ad break]

Justin: Alright Sydnee, wow me. I'm ready for your presentation on the benefits of oleandrin.

Sydnee: So, first of all, it's important to know that, among the toxic effects from oleandrin that we have observed from—and I'll get into this, some accidental but a lot of intentional poisonings throughout history—

Justin: Like this guy. Like the My Pillow guy.

Sydnee: [laughs] Um...

Justin: Every day.

Sydnee: The toxic effects of these substances can be something just like gastrointestinal symptoms like nausea, vomiting, abdominal pain. Obviously, if you apply it topically, you can have some irritation of the skin.

But the severe things we worry are electrolyte disturbances, so, you know, people take it lightly, and we've talked about this on the show before, like, "Oh no, you have some cramps, your potassium's low, you need a banana," that kind of idea. Which, by the way, banana's probably not your best bet there, but anyway, I digress.

The idea of a severe electrolyte disturbance is actually a huge deal. You know, if your potassium and sodium and those things are off, seriously off, I mean, you can die.

Justin: Yeah.

Sydnee: So, an electrolyte disturbance doesn't sound like a big deal. It is. It medically can be a huge deal. Cardiac arrhythmias, and then death. Now, the cardiac arrhythmia is the point that I wanna focus on.

Justin: Okay.

Sydnee: Because electrolyte disturbances are one way that you have a cardiac arrhythmia. It can make your heart beat abnormally, and you can die. Oleander specifically is considered a cardiac glycoside, and these are compounds, these are usually organic—well, they are, organic compounds that increase our what we call “cardiac output.”

Justin: Okay.

Sydnee: Which is like the pumping power of the heart. Okay?

Justin: That sounds good.

Sydnee: It does, right? And there is—that's why I said, there's a grain of truth in here that I'm going to get to.

Justin: As Tim the Toolman Taylor says, “More power...” Heh, heh, heh, that thing.

Sydnee: [laughs] Well, and it's important to recognize the complexity of these things. When you're trying to explain, like, why something does or doesn't work. You have to give areas where like, “Okay, I can understand why you would think that. Here are all the other things around it, though, to paint the whole picture.”

If you just say, “That's fake, it's poison, it doesn't work, move on,” you get all these internet conspiracy theories about, “Well, but maybe big pharma doesn't want us to know.” And I have nothing to do with big pharma, but I will tell you, it is poison and it's not gonna make you better.

Justin: Yeah.

Sydnee: But here's why. So, the way this works is, there's a pump on the surface of your heart cells. There's lots, but the one we're talking about... there's lot of different things on the surface of your heart cells, but the one we're talking about... it causes—this pump is blocked by cardiac glycosides like oleandrin.

This causes sodium to build up inside the cells, which through another mechanism I won't get into, cause calcium to build up in the cells. Which leads to a stronger contraction when stimulated. So, when your heart contracts, which means it squeezes, it beats, it pumps... it's stronger.

Justin: Okay.

Sydnee: Because of the effect of oleandrin. The heart pumps stronger, but it beats slower, which is a good thing. That's an efficient pump, right?

Justin: Mm-hmm.

Sydnee: Less, in a lower number of beats, you get more power. So it's a more, it's an efficient thing. And the blood pressure isn't messed up by all this. Which is why these medications could be really useful in something like atrial fibrillation, in which the heart is beating abnormally. It's beating too fast is usually the problem. It's beating fast and not efficiently, it's not squeezing with each, it's just kinda like, uh, fibrillating, so it's like quivering.

Justin: Okay.

Sydnee: Right? So, you can see why a medication like this would be useful in a condition like that. Slows the heart down, makes it beat efficiently, makes it beat regularly, improves the pumping power. Doesn't mess up your blood pressure, because your blood pressure can get messed up by some other meds that do this. It doesn't.

So you can see why all that would be helpful. And this is probably why this idea of it as a heart tonic has been perpetuated throughout different parts of the world.

Justin: So this really is a case of the—I mentioned it casually earlier, but it really is a case of the dose makes the poison. Like, there's a narrow slither in which, if you take it, it will help you but not kill you. Maybe.

Sydnee: Exactly. And that is exactly the point that you need to make next before you go to your garden or whatever and get some oleander. These drugs have an incredibly narrow therapeutic index. Which means if you take too little, well, it doesn't do anything. And if you take too much, you could die. And so, you have to regulate the dosing and exactly what you're getting very carefully. The one that we actually know and use is called digoxin.

Justin: [laughs] You just looked at me and said “digoxin” in such a way that I was gonna be like, [gasps] “Digoxin? You don’t say! That popular medication that I’m very familiar with?” I’ve never felt like more of a disappointment to you than when I just delivered you an utterly blank stare.

Sydnee: Listen, I know there is somebody out there who went, “Oh!” or knew where I was going with this and went, “Yes!” when I said it. So, thank you. I know you’re out there. This is just for you.

Justin: [laughs] Just you’re not married to them.

Sydnee: No. So, digoxin is a medicine we use. I prescribe, many of us prescribe. It is used, it works, it’s real. It’s been studied. [laughs] We know the appropriate dosing range. We know what can happen if we give too much. We know which patients it’s appropriate for, and we know the risks and the benefits of it, because it’s been thoroughly, you know, evaluated as a drug.

It is derived from a plant. Digitalis, or foxglove. So it’s a real, useful medicine, and it’s a cardiac glycoside. And you still have to dose it and monitor it carefully, you don’t wanna just use it willy-nilly, so please don’t go...

Justin: Eat foxglove.

Sydnee: I don’t know—yeah, don’t go eat foxglove. But the problem with oleander is that the toxic effects of the plant outweigh its usefulness as a cardiac glycoside. So, it’s not like digoxin, or even, you know, digitalis. We were able to find a way to synthesize the natural properties of this plant, foxglove, to create a medicine that is real and useful and helps human hearts.

We have not done that with oleander, and certainly not with the substance oleandrin. Nobody has done any of those studies, nobody has done that work. And part of it is it probably would—we would not be able to find that narrow index that I talked about.

Justin: Mm-hmm.

Sydnee: That would be almost impossible to find without also causing a lot of toxic side-effects. So I mean, would you, if you have digoxin which you could take that would work for you, or we say, “Now you could take

this other medicine, oleandrin, which... if you accidentally take one hour too early might kill you, or you can take it, and it'll work, and it won't kill you, but also you're gonna have nausea, vomiting, diarrhea, and abdominal pain the whole time you take it, and we're gonna have to check your electrolytes every week with blood tests," I mean... you know.

Justin: Yeah.

Sydnee: It's not a good medicine. So, you can see why, in folk medicine, this may have, "Oh, look," this might have done something. But there's tons of risks to it, and there's a reason we don't recommend people just go eat foxglove when they have AFib.

Justin: Right.

Sydnee: Take digoxin. Well, some people. Not everybody.

So, the most famous uses for oleander have, unfortunately, been as an intentional poison. In some parts of the world, particularly I found some case reports of this in Sri Lanka, oleander seeds were a widely-used method of self-harm. And there are a lot of literary and cultural examples of the idea that oleander is a poison that you could—I think there was a book about it and there are movies about it.

I mean, it's a famous poison to use. But you would have to be very careful if you were trying to poison somebody with oleander, because as I said, it tastes so bitter that it's rarely the cause of accidental death.

Justin: Mm.

Sydnee: It has been. I don't wanna get in—there's some very sad case reports you could read about that. But like, it has been a cause of accidental poisoning, but—

Justin: No thank you.

Sydnee: No.

Justin: Don't do that, thank you.

Sydnee: But it is not common. So, people have tried to find other uses for it, and cancer has been a big area of interest. I think just because everybody wants to do something about cancer. And I understand that.

I'm empathetic to that idea, like, there's gotta be something out there. Because you can feel very desperate if you or a loved one has had cancer. "There's gotta be something we're missing." I understand that perspective.

There have been some studies done to try to look into, you know, there are some traditional uses of oleander as a cancer cure in some cultures, is there something to that? And while, as we've talked about on this show, just because something happens in a lab in a test tube, it doesn't mean it'll work in the human body.

We have seen some, like, anti-tumor effects in labs. None of this has ever really been reproduced outside of these labs. We've never been able to see that kind of effect in a human. And currently, there is no cancer society that recommends any derivative of oleander for any anti-cancer use whatsoever.

Justin: Yeah.

Sydnee: So, there's just no evidence for any of that.

Justin: Okay.

Sydnee: There has also been some work done looking at, like, the anti-viral, possible anti-viral effects of oleandrin. Specifically, aimed at trying to treat HIV with oleandrin. Again, the studies are pretty inconclusive. They're all in test tubes, nobody's duplicated them in humans.

And I think this is where we start to get into this idea of, like, because we know this substance is so toxic to humans... if whatever you have to do in a lab to kill a virus or to stop a tumor involves so much oleandrin that, if you put it in a human body, they would die...

Justin: Yeah.

Sydnee: That's not—I mean, that's not a very useful... you know? That's not a useful compound. And I mean, that's basically all that's been done in this pursuit of oleandrin. Why, then, COVID? What does all of this have to do with COVID? Like...

Justin: It probably has to do with money. If I had to take a wild guess, that would be my guess.

Sydnee: So, since the pandemic, Phoenix Biotechnology... this is where Andrew Whitney comes in. He works at Phoenix Biotechnology, and they have been funding studies and encouraging research into... well, we had tried this with a couple viruses, HTLV and HIV, and we know they—

Justin: What's HTLV?

Sydnee: Human T-cell Leukemia Virus, which is much more rare than HIV. Still a problem. But they had looked at that virus first. And then they were looking at HIV next. But anyway, since we have these other ideas, and they also believe that it is a—at Phoenix Biotechnology, they believe in its anti-cancer properties, too.

They were already researching this prior to the pandemic. They thought, well, this would probably kill this new coronavirus as well. And so, they started directing studies to try to prove that. Because that's—I mean, I think you have to, like, why would you do that? I mean, there's the—we could give them the benefit of the doubt and say, "Well, it's the altruism." This is an imminent threat to humans, and we want to put all of our brains and money into trying to fix it.

Justin: Sure. Sure.

Sydnee: We could just give them the benefit of the doubt and say that.
[laughs]

Justin: Let's go with that.

Sydnee: So, I would say that, already suspect is the fact that one of the authors of the study they've done is Robert Newman, who was listed as the president of the company until very recently, when he was taken off of the website as president, and now is just a, like, scientific advisor or something.

And they have addressed this and said, "Oh, no, no, no, that was just 'cause we wanted him to focus more on the science, so we took him out of some other positions."

Justin: "Newman..."

Sydnee: It's a little concerning.

Justin: Seinfeld.

Sydnee: [laughs] The study they've done is a pre-print that shows, again, only in vitro, meaning in a lab, in a test tube, activity of the compound against the virus. And in this study, they try to show that it can block viral replication, so they won't make as many viruses and it will kill the virus. They tried a couple different doses, and they claimed success based on this.

Now, I would say... part of the problem is that what is the lethal dose of oleandrin? This is a little hard to pin down because, like I said, there haven't been a ton of cases of accidental oleandrin, oleander poisoning. And so, and most of the time, when people are doing it, they're just eating leaves.

So like, I don't know how to measure... I mean, well, we could measure that, right? About how much oleandrin is in a leaf. But how many leaves did you eat, or flower petals? The whole plant's toxic, by the way. So like, what did you eat out of it? Did you eat the seeds, the flowers? Because they all have different concentrations of the toxic substances.

But from our best estimates, based on people who have come in with oleander poisoning, and have had blood levels drawn to see, like, how much oleandrin is in our system, by our best guesses from that, in terms of, like, what is the lethal dose, how much could you take of this before you would die... the concentrations in this study far exceed that lethal dose. So, they would already have to do a lot of modification, because we're kind of getting back into bleach territory.

Justin: Yeah.

Sydnee: Yeah, I mean, there are lots of things you can dump on a virus in a test tube to kill it. But if you dump them in a human, you'll kill the human too, and so that doesn't work. And that is—the studies don't show much beyond that idea at this point.

Justin: Right.

Sydnee: I mean, that's just—they just haven't done it. Now, Whitney swears that there is evidence that it works in humans.

Justin: Okay.

Sydnee: He's not gonna show it you.

Justin: But he has it.

Sydnee: It's there. It's been done.

Justin: Okay.

Sydnee: But based on this study, this pre-print that they've done, he feels very strongly that we need to do big hospital trials. Trump needs to authorize us to start giving oleandrin to people with COVID in hospitals immediately, and then we can just do the studies on the fly, basically. We'll just do them while we're treating the illness, based on this one pre-print that we've done.

So, he will tell you that USAMRIID, the United States Army Medical Research Institute of Infectious Diseases, has also looked into oleander and... they said it was inconclusive, but—[laughs]

Justin: So...

Sydnee: He's not the only one who looked into it. And what he is claiming is that it is a cure for COVID-19, and this is all, he did this big interview with Axios. He stands by it 100%, it will cure COVID-19 in two days. And he says, "Now, there are all sorts of lawyers who tell me I can't say things like that, because you know, you need to have years of studies and you need to have this, that, and the other and so forth, but as an American with the right of free expression, I'm telling you, I've seen it with my own eyes."

Justin: Holy—that's the dumb— [deep breath]

Sydnee: And when he uses the word 'cure,' he would like you to know that he means the symptoms go away quickly in the vast majority of cases.

Justin: Okay. So... wow. That's among the dumbest things we've ever heard said on this show. If that works on you, I don't know what to tell you.

Sydnee: Well—

Justin: There are so many problems with what he just said. It is ludicrous. It's ludicrous. I almost feel redundant, I don't wanna point out the fact that like, no, actually we do have laws that dictate what you can

and can't say. There's many, many, many examples of that. Like, you can't yell fire in a crowded theatre, and we have libel and slander laws, and we have, you know, secrecy, you know, punishment for breaking confidentiality. There's, I mean...

Sydnee: And when it comes to marketing. When you're marketing, especially something that is supposed to be a medical—a medication or a medical device or something that has the intent to treat or cure, there's lots of rules about what you can say and can't say. And for good reason.

If you want to—we do have freedom of speech, and if you want to go stand outside your home and shout to the top of your lungs that oleandrin cures COVID, you're allowed to do that. No one's gonna arrest you.

Justin: Mm-hmm.

Sydnee: I mean, the neighbors might say, "Hey, could you keep it down?" But you're allowed to do that. But you can't sell a possibly toxic substance to other humans under that claim without any sort of proof.

Justin: Is it a prescription medication?

Sydnee: So, here's...

Justin: Like, is it...

Sydnee: Aw, man. Here's the rub. [laughs]

Justin: Okay.

Sydnee: Um, what he is pushing for with all of this is to get it approved by the FDA for investigational use on the treatment of COVID-19, meaning that it would be a prescription drug. Meaning big bucks, right? Like, if—

Justin: And if it's not, can he just sell it now?

Sydnee: Not yet.

Justin: Okay.

Sydnee: But he is pushing to allow oleandrin to be sold off the shelf as a dietary supplement. Which means it would not be regulated by the FDA.

Justin: Wow.

Sydnee: And if that is allowed, it could be on the shelves, I mean, as soon as they can stock them. It would be out there. I mean, tomorrow. Not literally—well, probably. Well, I don't know. Maybe they've already made it. But yeah, if that goes through... and I think that that's a very interesting thing to say.

"I have the cure for COVID-19 and I would like to do studies to prove it, but if that doesn't work, I'll just sell it over the counter and call it a dietary supplement." Which intrinsically is meant to not treat or cure anything. You have to say that. 'Cause if you say that it treats and cures a thing, you can't sell it that way. Then it does fall back to the FDA. So, he's playing both—he's fine either way. He just wants to sell this stuff to people and make money.

Justin: Do we know anything about his formulation in the sense that it itself would be dangerous? Like, do we know enough about what his...

Sydnee: I don't know about the—

Justin: I assume that all that's classified, but, like... is it—I'm wondering if it's like a homeopathic kinda thing where it's got, like, one microgram of the stuff in there and the rest of it is sugar, or what?

Sydnee: I mean, when I think when you're talking about, like, the stuff that he's drawing from to make his claims, like in, like, folk medicine preparations, we're talking about actual oleander plant. And so, like, real amounts of toxic substance.

Now, what he is doing, I have no idea. I don't know. I mean, in the lab, they were using real concentrations of oleandrin that could kill us, but whatever he is, like—whatever the My Pillow guy is taking, I don't—the—I mean, he's alive, so it's not killing him. I'm not his doctor, so I don't know what it is or isn't doing to him.

But it is—my bigger concern is, whatever they're gonna sell, first of all, I don't know, it might be toxic. I mean, the idea that just because something is sold over the counter, it can't be toxic, I think we know is flawed. There are lots of things that are sold over the counter that, taken in the wrong dose, or even just taken in the wrong patient, can be toxic.

Justin: Yeah.

Sydnee: I doubt that whatever he is formulating, whatever their company is formulating, would be if you take it as prescribed, or not as pre—as recommended, I should say...

Justin: You're probably not getting a toxic dose, taking it as recommended.

Sydnee: I mean, I would assume—but I have no idea, I have no way of vetting that. And that's always the problem with these things. I get this question a lot from patients, like, is this safe? I don't know. We didn't do all the stuff to say it was safe.

Justin: Yeah.

Sydnee: It's not regulated by the FDA, so I have no idea. And you can throw all the criticisms you want at the FDA, but at least you know studies were done if something goes through the FDA. I don't know about this. So, it's a substance that is known to be toxic, known to be fatal, known as a poison. That is the only thing that we know about this stuff.

We have seen it kill viruses in test tubes, supposedly. Again, if you believe their data, which all of this makes me question everything. I mean, I look forward to it being peer-reviewed, to see what other people think of this. But why would we think it works? Because Ben Carson, the My Pillow guy, and the guy with a vested financial interest in it working, say it works. That is our evidence that it works.

Justin: The My Pillow guy's also in that latter category.

Sydnee: Yes, he is also, and he has come out and said that he invested money in this because he believes it is the cure. He believes it will save our lives and so, I mean, he's a true believer. And I buy that from what he said.

Justin: Is he taking it prophylactically?

Sydnee: Yes, he says he is taking it prophylactically so that he won't—and so far, he claims that he has not had COVID. And so it works.
[laughs]

Justin: Jeezo Pete.

Sydnee: But I would, I would not in any way—my big concern is that, when you hear this, um, there are people who probably have oleander growing somewhere near them.

Justin: Who might just go chuck a few petals in their mouth and go to town.

Sydnee: I know that sounds like a stretch, but people—

Justin: No it ain't!

Sydnee: People drank bleach.

Justin: Yeah, it's not a stretch.

Sydnee: So, I would... please do not. There is no evidence that oleander can be used to treat or cure or prevent anything. There is no evidence of any of that. We have ample evidence that eating the plant oleander, or taking oleander extract, oleandrin, can cause great harm and death. Please do not take oleander any form. Best case, you're wasting your money. Worst case, you'll die. So, please do not take oleander.

Justin: Thank you for listening to our podcast, Sawbones. We hope you'll share it with some people who maybe might—you probably know the person in your life who is most prone to eating poisonous flowers to cure COVID. So, maybe share this episode with them.

Thanks to The Taxpayers for the use of their song "Medicines" as the intro and outro of our program, and thanks to you for listening. We sure appreciate it, and we hope you have a great week. And we look forward to checking in with you again, but until then, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

Justin: And as always, don't drill a hole in your head.

[theme music plays]

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