

EXHIBIT 9

1/16/2026

Kathleen Moller v. Martian Sales, Inc., et al. Josef Thundiyil, MD, MPH

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF LOUISIANA

-----X
KATHLEEN MOLLER, :
 :
 Plaintiff, :
 : Civil Action No.
 vs. :
 : 2:24-cv-228-WBV-DPC
 MARTIAN SALES, INC., :
 et al., :
 :
 Defendants. :
-----X

VIRTUAL VIDEOTAPED DEPOSITION OF
JOSEF THUNDIYIL, MD, MPH
Friday, January 16, 2026
10:08 a.m. Eastern Standard Time

REPORTER: Dawn A. Jaques, CSR, CLR

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1 kratom as a dirty drug?

2 A You could ask him if he used that
3 term, yes. I don't know if he would recall
4 it.

5 Q What amount of kratom causes
6 toxicity?

7 A Well, I think it depends on a lot of
8 factors. We don't know the exact level that
9 causes toxicity. We have some different
10 estimates.

11 For example, you know, we know when
12 we look at what's known as the IC50 for the
13 potassium current, so the concentration at
14 which about 50% of people will experience some
15 blockade of the inward cardiac potassium
16 channel, that number is estimated to be about
17 0.3 mol/L, which is a concentration of about
18 17 ng/mL.

19 So there's a potential for harm at
20 levels -- or at least for 50% of people to
21 experience that. We have seen deaths at lower
22 concentrations.

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1 Because mitragynine is not
2 standardized -- or kratom is not standardized
3 in its formulation, it's nearly impossible at
4 this point, with the existing science, to have
5 a dose that we know causes harm. Most of what
6 we try to do is extrapolate from different
7 effects.

8 The other complicating factor is the
9 fact that different formulations seem to have
10 effects. It could be dried leaf, it could be
11 extract. These often get mixed up or
12 confused, and there doesn't seem to be a
13 standardization. Unlike a lot of drugs, which
14 might be one chemical, kratom has, as we've
15 said before, about 40 different alkaloids.

16 So all these make it difficult to
17 have a specific dose or concentration that we
18 know will absolutely cause harm, but we know
19 that inter-individually from different drugs,
20 like other opiates, that some people
21 experience harm at a low level; some people,
22 due to tolerance and other factors, won't

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1 MR. COWGILL: Objection to form,

2 asked and answered.

3 THE WITNESS: I think I stand by my

4 same answer.

5 BY MS. PAYTON:

6 Q And do you agree with the statement

7 that we do not know who is at risk for side

8 effects?

9 A Yeah, I think that's one of the big

10 dangers with kratom is we know there's a high

11 potential for drug-drug interaction. We know

12 it's an opioid. We know that a variety of

13 health effects have been described.

14 So, yes, we don't know who exactly

15 is at risk, and that's one of the limitations

16 of some of the early human studies.

17 Q What is an unsafe dose of kratom?

18 MR. COWGILL: Objection to form,

19 asked and answered.

20 THE WITNESS: As I said before, we

21 don't know what the dose is. The package

22 and capsules, most of them don't have a

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1 specific uniform product with a dose, so
2 we don't know what that unsafe dose is,
3 and it varies from person to person.

4 BY MS. PAYTON:

5 Q What is your opinion of the cause of
6 Ms. Moller's death?

7 A So my opinion is that she died from
8 her use of kratom.

9 Q And specifically how did that occur
10 physiologically?

11 A Well, from her medical records, it
12 looks like she had cardiorespiratory arrest.
13 So either her heart stopped first and she
14 stopped breathing, or she stopped breathing,
15 and then her heart stopped.

16 Q Do you know which one?

17 A We can't be for certain. I think
18 mechanistically, there's data to support both.
19 In her case, I don't know exactly which one it
20 was.

21 I know that she had the risk of
22 being on other two medications that both