STATE OF MINNESOTA
IN COURT OF APPEALS
A20-1254

State of Minnesota,
Respondent,

vs.

Jason James Loveless,
Appellant.

Filed September 13, 2021
Affirmed in part and reversed in part
Johnson, Judge

Crow Wing County District Court
File No. 18-CR-19-2417

Keith Ellison, Attorney General, St. Paul, Minnesota; and

Donald F. Ryan, Crow Wing County Attorney, Lindsey Lindstrom, Assistant County Attorney, Brainerd, Minnesota (for respondent)

Cathryn Middlebrook, Chief Appellate Public Defender, St. Paul, Minnesota (for appellant)

Considered and decided by Gaïtas, Presiding Judge; Worke, Judge; and Johnson, Judge.

SYLLABUS

1. Under the amelioration doctrine, the amendments to Minnesota Statutes section 152.01, subdivision 9, and section 152.22, subdivision 5a, in 2019 Minn. Laws 1st Special Session chapter 9, article 11, sections 77 and 78, which changed the definition of "marijuana," apply to a prosecution for unlawful possession of marijuana that is alleged to

have occurred before the effective date of the amendments, so long as the case has not yet reached final judgment.

2. To prove beyond a reasonable doubt that a defendant is guilty of unlawful possession of marijuana in the form of leafy plant material in violation of Minnesota Statutes section 152.025, subdivision 2(1) (as amended in 2019), the state must introduce evidence that is sufficient to prove that the substance contains delta-9 tetrahydrocannabinol in a concentration greater than 0.3 percent on a dry-weight basis.

3. To prove beyond a reasonable doubt that a defendant is guilty of unlawful possession of a liquid mixture containing tetrahydrocannabinols in violation of Minnesota Statutes section 152.025, subdivision 2(1), the state must introduce evidence that is sufficient to prove that the mixture contains tetrahydrocannabinols. The state need not prove that the mixture contains delta-9 tetrahydrocannabinol in a concentration greater than 0.3 percent on a dry-weight basis.

OPINION

JOHNSON, Judge

A Crow Wing County jury found Jason James Loveless guilty of two counts of fifth-degree controlled-substance crime. One conviction is based on Loveless's possession of a leafy plant material, which the state contends is marijuana. The other conviction is based on Loveless's possession of vaporizer cartridges containing an amber-colored liquid mixture, which the state contends contains tetrahydrocannabinols. Loveless argues that the state's evidence is insufficient to support the jury's verdicts on the ground that, in light of recent amendments to the Minnesota Statutes, the state is required to prove that both the

leafy plant material and the liquid mixture contain delta-9 tetrahydrocannabinol in a concentration greater than 0.3 percent on a dry-weight basis.

As an initial matter, we conclude that, pursuant to the amelioration doctrine, the recent statutory amendments apply to Loveless's case, even though his alleged criminal conduct occurred before the effective date of the amendments. In light of the statutory amendments, we conclude as a matter of law that the 0.3-percent threshold in the amended statute applies to cannabis in the form of leafy plant material. We further conclude that the state's evidence is insufficient to prove that the leafy plant material possessed by Loveless contains delta-9 tetrahydrocannabinol in a concentration greater than 0.3 percent. But we conclude as a matter of law that the 0.3-percent threshold does *not* apply to a liquid mixture containing tetrahydrocannabinols, and we further conclude that the state's evidence is sufficient to prove that Loveless possessed a liquid mixture that contains tetrahydrocannabinols. Therefore, we affirm in part and reverse in part.

FACTS

On June 20, 2019, state troopers executed an arrest warrant at a home in the city of Brainerd. The troopers arrested the person identified in the warrant, who was inside the home. Loveless also was present inside the home. Loveless initially was removed from the home, but he was escorted back into the home, at his request, to retrieve warmer clothing. Loveless directed the troopers to a bedroom. In the bedroom, a trooper saw, in plain view, certain items associated with controlled substances, including smoking pipes, rolling papers, a torch lighter, and a marijuana grinder. The trooper also saw a plastic tote box that was closed and locked.

Based on the troopers' observations, the Crow Wing County sheriff's office applied for and obtained a warrant to search the home. In executing the search warrant, deputies found the key for the locked tote box on a key ring that also had a key to Loveless's vehicle, which was parked outside the home. Inside the tote box was approximately three pounds of a leafy plant material, which field-tested positive for marijuana. Elsewhere in the bedroom, deputies found more than 89 vaporizer cartridges containing an amber-colored liquid. The deputies also found two handguns and multiple rounds of ammunition.

The state charged Loveless with three counts of unlawful possession of a firearm or ammunition, in violation of Minn. Stat. § 624.713, subd. 1(2) (2018), and two counts of fifth-degree controlled-substance crime, in violation of Minn. Stat. §§ 152.025, subds. 1(1), 2(1) (2018). In count 4, which concerns the vaporizer cartridges, the state alleged that Loveless possessed and intended to sell a mixture containing marijuana or tetrahydrocannabinols. In count 5, the state alleged that Loveless possessed marijuana in the form of leafy plant material.

The case was tried to a jury on three days in February 2020. Loveless represented himself. The state called seven witnesses: two state troopers who executed the arrest warrant at the home, three Crow Wing County deputies who executed the search warrant and conducted an investigation, a special agent from the state bureau of criminal apprehension (BCA), and a forensic scientist from the BCA who conducted laboratory tests of the alleged controlled substances that were found in the bedroom of the home.

The BCA forensic scientist testified that she performed a "macroscopic" examination of the leafy plant material, which, she explained, means that she "looked at it

on my desk to see what it looked like." She also performed a "microscopic" examination, which means that she used "a microscope and look[ed] at very fine detail." She also performed a color test and a "GC-MS analysis."[1] She testified that, based on her laboratory tests, the leafy plant material is marijuana.

The forensic scientist also testified that she performed a color test and a GC-MS analysis of the liquid mixtures in two of the vaporizer cartridges. She testified that the liquid mixtures contain "tetrahydrocannabinols" but that "no marijuana was identified" because she "did not observe any apparent plant material." The forensic scientist did not testify about the concentration of delta-9 tetrahydrocannabinol in either the leafy plant material or the liquid mixtures.

During the defense case, Loveless testified that the resident of the home where the contraband was found, who was an acquaintance of his, had asked him to stay at the home to take care of a dog while the acquaintance was out of town. Loveless testified that he had arrived at the home shortly before the troopers arrived to execute the arrest warrant and that he "had no knowledge of those items being there." Loveless did not call any other witnesses.

The district court instructed the jury with respect to count 5, which concerns the leafy plant material, that the state was required to prove, among other things, that "the

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[1]The BCA forensic scientist also referred to this analysis as "gas chromatography," which explains the meaning of the letters "GC," but she did not explain the meaning of the letters "MS." In *State v. Vail*, 274 N.W.2d 127 (Minn. 1979), the supreme court described "gas chromatography-mass spectroscopy" as a laboratory analysis that may be used to identify marijuana. *Id.* at 130. We assume that the BCA forensic scientist's use of the letters "MS" is a reference to mass spectroscopy.

defendant possessed marijuana." The instruction did not define the term "marijuana." The district court instructed the jury with respect to count 4, which concerns the liquid mixtures in the vaporizer cartridges, that the state was required to prove, among other things, that "the defendant possessed with intent to sell one or more mixtures containing tetrahydrocannabinols." The instruction did not define the term "tetrahydrocannabinols." Neither instruction made any reference to a minimum level of concentration of delta-9 tetrahydrocannabinol.

The jury found Loveless not guilty of counts 1, 2, and 3, which concerned the firearms and ammunition. The jury found Loveless guilty of counts 4 and 5, which concern the alleged controlled substances. The district court imposed concurrent sentences of 21 months of imprisonment on counts 4 and 5.

Loveless appeals. His sole argument on appeal is that the state did not prove beyond a reasonable doubt that the substances he possessed—the leafy plant material and the vaporizer cartridges containing amber-colored liquid mixtures—are controlled substances.

ISSUES

I. Do the 2019 amendments to the statutory definition of "marijuana," which became effective after the date of Loveless's alleged possession of controlled substances, apply to this case pursuant to the amelioration doctrine?

II. Is the state's evidence sufficient to prove beyond a reasonable doubt that Loveless possessed a controlled substance, in violation of Minnesota Statutes section 152.025, subdivision 1 (as amended in 2019), by possessing (a) leafy plant material of the

genus *Cannabis* with an unknown concentration of delta-9 tetrahydrocannabinol or (b) vaporizer cartridges containing liquid mixtures that include tetrahydrocannabinols?

ANALYSIS

Loveless argues that the evidence is insufficient to support the jury's verdicts on counts 4 and 5. In arguing for reversal of his convictions, he relies on recent amendments to statutes that, he contends, require the state to prove the concentration of the alleged controlled substances that he possessed. Accordingly, we begin our analysis by determining whether the recent statutory amendments apply to this case. We then consider the sufficiency of the evidence in light of the applicable law.

I.

Loveless argues that, under the amelioration doctrine, recent statutory amendments to the definition of "marijuana" apply to this case even though the amendments became effective after the date of his offenses. The state did not present an argument concerning the application of the amelioration doctrine in its responsive brief.

"The amelioration doctrine applies an amendment mitigating punishment to acts committed prior to that amendment's effective date, if there has not been a final judgment reached in the case." *State v. Robinette*, ____ N.W.2d ____, ____, 2021 WL 3745545, at *3 (Minn. Aug. 25, 2021); *see also State v. Kirby*, 899 N.W.2d 485, 489 (Minn. 2017); *State v. Otto*, 899 N.W.2d 501, 503 (Minn. 2017). The amelioration doctrine is grounded in the principle that if the legislature has amended a statute to mitigate criminal punishment, "the legislature has manifested its belief that the prior punishment is too severe and a lighter sentence is sufficient." *State v. Coolidge*, 282 N.W.2d 511, 514 (Minn. 1979). As a

consequence, "Nothing would be accomplished by imposing a harsher punishment, in light of the legislative pronouncement, other than vengeance." *Id.* at 514-15. Consequently, a defendant whose criminal case has not yet reached final judgment may receive the benefit of the new, more lenient law, so long as there is no "contrary statement of intent by the legislature." *Edstrom v. State*, 326 N.W.2d 10, 10 (Minn. 1982).

The supreme court has summarized the amelioration doctrine by stating that the doctrine applies if three conditions are satisfied: "(1) there is no statement by the Legislature that clearly establishes the Legislature's intent to abrogate the amelioration doctrine; (2) the amendment mitigates punishment; and (3) final judgment has not been entered as of the date the amendment takes effect." *Kirby*, 899 N.W.2d at 490. We will proceed to consider each of the three requirements.

First, we ask whether there is a "statement by the Legislature that clearly establishes the Legislature's intent to abrogate the amelioration doctrine." *Id.* Such a statement must be "an express declaration or clear indication of the Legislature's intent to abrogate the amelioration doctrine within an enacted statute." *Robinette*, ____ N.W.2d at ____, 2021 WL 3745545, at *5. In *Kirby*, the supreme court held that there was no such statement in an effective-date provision stating, "This section is effective the day following final enactment." 899 N.W.2d at 490 (quoting 2016 Minn. Laws ch. 160, § 18, at 591). The *Kirby* court reasoned that a clearer statement is required, such as a statement that "crimes committed prior to the effective date of this act are not affected by its provisions." *Id.* (quoting 1975 Minn. Laws ch. 374, § 12, at 1251, interpreted in *Edstrom*, 326 N.W.2d at 10).

In this case, there is no express effective-date provision for the particular sections of the law on which Loveless relies. 2019 Minn. Laws 1st Spec. Sess. ch. 9, art. 11, §§ 77-78, at 428. Furthermore, there is no express effective-date provision for the article in which the relevant sections are included. 2019 Minn. Laws 1st Spec. Sess. ch. 9, art. 11, at 450. Likewise, there is no express effective-date provision applicable to the entire 478-page act. 2019 Minn. Laws 1st Spec. Sess. ch. 9, at 478. In the absence of any express effective-date provision, the act, which includes some appropriations, became effective on July 1, 2019. *See* Minn. Stat. § 645.02 (2018); 2019 Minn. Laws 1st Spec. Sess. ch. 9, art. 13, § 1, at 451-52; art. 14, §§ 1-11, at 452-78. More importantly, for purposes of the amelioration doctrine, there is no statement in the relevant provisions of the act that would indicate any legislative intent that the amelioration doctrine should not apply. *See Kirby*, 899 N.W.2d at 490-95; *see also* 2019 Minn. Laws 1st Spec. Sess. ch. 9, art. 11, §§ 77-78, at 428. Thus, Loveless has satisfied the first requirement of the amelioration doctrine.

Second, we ask whether "the amendment mitigates punishment." *Id.* at 490. The supreme court repeatedly has held that a law mitigates punishment if it calls for a shorter term of imprisonment. *Kirby*, 899 N.W.2d at 495-96; *Otto*, 899 N.W.2d at 503-04; *Edstrom*, 326 N.W.2d at 10; *Ani v. State*, 288 N.W.2d 719, 720 (Minn. 1980); *Hamilton v. State*, 289 N.W.2d 470, 474-75 (Minn. 1979); *Coolidge*, 282 N.W.2d at 514-15. It appears that the supreme court has not considered a case in which a statutory amendment would cause an appellant's conduct to no longer be a crime at all and, thus, not deserving of any criminal punishment. But the supreme court has endorsed the concept that such a result is within the concept of mitigation. In *Coolidge*, the supreme court stated, "Under common

law, the well-settled principle is that where criminal law in effect is repealed, absent a savings clause, all prosecutions are barred where not reduced to a final judgment." 282 N.W.2d at 514 (citing *Bell v. Maryland*, 378 U.S. 226, 230, 84 S. Ct. 1814, 1817 (1964)). In *Bell*, the United States Supreme Court acknowledged "the universal common-law rule that when the legislature repeals a criminal statute or otherwise removes the state's condemnation from conduct that was formerly deemed criminal, this action requires the dismissal of a pending criminal proceeding charging such conduct." 378 U.S. at 230, 84 S. Ct. at 1817. We interpret *Coolidge* to indicate that Minnesota follows the well-settled common-law rule that a statutory amendment "mitigates punishment" if it decriminalizes conduct that previously was deemed criminal. The well-settled common-law rule is logical because it allows persons who have been convicted of a crime for conduct that no longer is criminal to be treated the same as—not worse than—persons whose prior conduct still is criminal but deserving of lesser punishment. Thus, Loveless has satisfied the second requirement of the amelioration doctrine.

Third, we ask whether "final judgment has not been entered as of the date the amendment takes effect." *Kirby*, 899 N.W.2d at 490. A district court enters judgment in a criminal case "when the district court enters a judgment of conviction and imposes or stays a sentence." Minn. R. Crim. P. 28.02, subd. 2(1). However, "a defendant's case is not final for purposes of the third requirement of the amelioration doctrine if the defendant has timely filed a notice of appeal and the direct appeal is still pending." *Luna-Pliego v. State*, 904 N.W.2d 916, 919 (Minn. App. 2017). "This is so because '[a]n appeal suspends a judgment and deprives it of its finality, and that lack of finality continues until the appeal

is dismissed or until the appellate court has pronounced its decision.'" *Id.* (quoting *State v. Lewis*, 656 N.W.2d 535, 537 (Minn. 2003) (alteration in original). This appeal is Loveless's direct appeal from his convictions. Accordingly, his convictions have not yet reached final judgment. Thus, Loveless has satisfied the third requirement of the amelioration doctrine.

Because Loveless has satisfied all three requirements of the amelioration doctrine, we will apply the 2019 statutory amendments when considering Loveless's arguments for reversal of his convictions.

II.

Loveless argues that the state's evidence is insufficient to support his convictions on counts 4 and 5. Specifically, he argues that the state did not prove beyond a reasonable doubt that the substances he possessed have a concentration of delta-9 tetrahydrocannabinol that is greater than 0.3 percent on a dry-weight basis.

In analyzing an argument that the evidence is insufficient to support a conviction, this court ordinarily undertakes "a painstaking analysis of the record to determine whether the evidence, when viewed in the light most favorable to the conviction, was sufficient." *State v. Ortega*, 813 N.W.2d 86, 100 (Minn. 2012) (quotation omitted). We assume that "the jury believed the state's witnesses and disbelieved any evidence to the contrary." *State v. Caldwell*, 803 N.W.2d 373, 384 (Minn. 2011) (quotation omitted). We "carefully examine the record to determine whether the facts and the legitimate inferences drawn from them would permit the factfinder to reasonably conclude that the defendant was guilty

beyond a reasonable doubt of the offense of which he was convicted." *State v. Waiters*, 929 N.W.2d 895, 900 (Minn. 2019) (quotation omitted).

The above-stated standard of review applies so long as a conviction is adequately supported by direct evidence. *State v. Horst*, 880 N.W.2d 24, 39 (Minn. 2016). Direct evidence is "evidence that is based on personal knowledge or observation and that, if true, proves a fact without inference or presumption." *State v. Harris*, 895 N.W.2d 592, 599 (Minn. 2017) (quotation omitted). Circumstantial evidence, on the other hand, is "evidence from which the factfinder can infer whether the facts in dispute existed or did not exist." *Id.* (quotation omitted). A conviction depends on circumstantial evidence if proof of the offense, or a single element of the offense, is based solely on circumstantial evidence. *See State v. Fairbanks*, 842 N.W.2d 297, 307 (Minn. 2014).

If a conviction necessarily depends on circumstantial evidence, we apply a heightened standard of review. *Id.* The review applicable to circumstantial evidence consists of a two-step analysis. *State v. Moore*, 846 N.W.2d 83, 88 (Minn. 2014). First, we "identify the circumstances proved." *Id.* "In identifying the circumstances proved, we assume that the jury resolved any factual disputes in a manner that is consistent with the jury's verdict." *Id.* Second, "we examine independently the reasonableness of the inferences that might be drawn from the circumstances proved" and "determine whether the circumstances proved are consistent with guilt and inconsistent with any rational hypothesis except that of guilt." *Id.* (quotations omitted). At the second step of the analysis, we give no deference to the jury's verdict. *Loving v. State*, 891 N.W.2d 638, 643 (Minn. 2017). In assessing the circumstances proved and the inferences that may be drawn

from them, we consider the evidence as a whole rather than examining each piece of evidence in isolation. *State v. Taylor*, 650 N.W.2d 190, 206 (Minn. 2002).

Before considering the substance of Loveless's argument, we note the state's position that Loveless has forfeited his argument by not giving notice of the issue before trial and by not introducing any evidence on the issue. Contrary to the state's contention, a defendant does not forfeit a challenge to the sufficiency of the evidence based on the interpretation of a statute by not raising the issue in the district court. *State v. Pakhnyuk*, 926 N.W.2d 914, 918-20 (Minn. 2019). Thus, Loveless is entitled to appellate review of his argument that the state's evidence is insufficient to support his convictions.

A. Count 5: Leafy Plant Material

We first consider Loveless's challenge to the sufficiency of the evidence supporting his conviction on count 5, in which the state alleged that the leafy plant material he possessed is marijuana.

1. Definition of Marijuana

The state charged Loveless with violating the following statute: "A person is guilty of controlled substance crime in the fifth degree . . . if . . . the person unlawfully possesses one or more mixtures containing a controlled substance classified in Schedule I, II, III, or IV, except a small amount of marijuana." Minn. Stat. § 152.025, subd. 2(1) (2018). A "small amount" of marijuana is defined by statute to mean "42.5 grams or less." Minn. Stat. § 152.01, subd. 16 (2018). There is no dispute in this case that the leafy plant material found inside the plastic tote box weighs more than 42.5 grams.

Schedule I is a list of controlled substances that is codified in the Minnesota Statutes. *See* Minn. Stat. § 152.02, subd. 2 (2018). Schedule I includes "marijuana" as well as "any natural or synthetic material, compound, mixture, or preparation that contains any quantity of [marijuana], [its] analogs, isomers, esters, ethers, salts, and salts of isomers, esters, and ethers, whenever the existence of the isomers, esters, ethers, or salts is possible," unless such a substance has been "specifically excepted or . . . listed in another schedule." Minn. Stat. § 152.02, subd. 2(h), 2(h)(1). "Marijuana" is defined by statute as follows:

> "Marijuana" means all parts of the plant of any species of the genus Cannabis, including all agronomical varieties, whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds or resin, but shall not include the mature stalks of such plant, fiber from such stalks, oil or cake made from the seeds of such plant, any other compound, manufacture, salt, derivative, mixture, or preparation of such mature stalks, except the resin extracted therefrom, fiber, oil, or cake, or the sterilized seed of such plant which is incapable of germination. *Marijuana does not include hemp as defined in section 152.22, subdivision 5a.*

Minn. Stat. § 152.01, subd. 9 (2020) (emphasis added).

Loveless relies on the last sentence of the definition of marijuana, which we have italicized, which expressly excludes hemp. The term "hemp" is defined in section 152.22, subdivision 5a, to have "the meaning given to industrial hemp in section 18K.02, subdivision 3." Minn. Stat. § 152.22, subd. 5a (2020). The term "industrial hemp," in turn, is defined in section 18K.02, subdivision 3, as follows:

> "Industrial hemp" means the plant Cannabis sativa L. and any part of the plant, whether growing or not, including the plant's seeds, and all the plant's derivatives, extracts,

> cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, *with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis*. Industrial hemp is not marijuana as defined in section 152.01, subdivision 9.

Minn. Stat. § 18K.02, subd. 3 (2020) (emphasis added).[2]

In light of these definitions, leafy plant material of the genus *Cannabis* could be either "marijuana" or "hemp." If leafy plant material is cannabis with a concentration of delta-9 tetrahydrocannabinol that is 0.3 percent or less on a dry-weight basis, it is hemp, which is *not* within the definition of marijuana in section 152.01, subdivision 9. It is *not* unlawful for a person to possess hemp in Minnesota. But if leafy plant material is cannabis with a concentration of delta-9 tetrahydrocannabinol that is greater than 0.3 percent on a dry-weight basis, it is marijuana, as that term is defined in section 152.01, subdivision 9. It is unlawful in Minnesota for a person to possess more than 42.5 grams of marijuana.

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[2]Minnesota's definition of "marijuana" is consistent with federal law, which defines "marihuana" similarly, 21 U.S.C. § 802(16)(A) (2018), and expressly states that "[t]he term 'marihuana' *does not include . . . hemp, as defined in section 1639o of title 7*," *id.* § 802(16)(B)(i) (emphasis added). The federal definition of "hemp," which is referenced in the federal definition of marihuana, provides, "The term 'hemp' means the plant Cannabis sativa L. and any part of that plant, including the seeds thereof and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, *with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis*." 7 U.S.C. § 1639*o*(1) (2018) (emphasis added). The federal definition of hemp was enacted into law in December 2018. *See* Agriculture Improvement Act of 2018, Pub. L. No. 115-334, § 10113, 132 Stat. 4908 (2018). The hemp exception to the federal definition of marihuana was enacted into law at the same time. *Id.*, § 12619(a), 132 Stat. 5018.

2. *Means of Proving Marijuana*

Loveless argues that, to satisfy its burden of proof, the state must prove an unlawful concentration of delta-9 tetrahydrocannabinol. Loveless's argument implies that the state must introduce affirmative evidence that the concentration of delta-9 tetrahydrocannabinol in the leafy plant material is greater than 0.3 percent on a dry-weight basis. In its responsive brief, the state does not address the issue in depth. The state argues only that it satisfied its burden of proof because the BCA forensic scientist testified that the leafy plant material is marijuana. Because the definition of marijuana was amended only recently, there is no precedential caselaw specifically on point.

To determine what evidence is necessary to support Loveless's conviction of possession of marijuana, we look to the supreme court's opinions concerning the evidence necessary to prove the identity of a controlled substance. The supreme court has relied on scientific evidence in rejecting challenges to the sufficiency of the evidence of the identity of a controlled substance. *See State v. Wiley*, 366 N.W.2d 265, 267-69 (Minn. 1985) (affirming marijuana-possession conviction based on testimony of chemist who had identified marijuana by performing microscopic examination and thin-layer chromatography test); *State v. Dick*, 253 N.W.2d 277, 278-79 (Minn. 1977) (affirming marijuana-possession conviction based on testimony of scientist who had identified marijuana by performing microscopic examination and "modified Duquenois or Duquenois-Levine test"). But in *State v. Vail*, 274 N.W.2d 127 (Minn. 1979), the supreme court reversed a conviction, in part because the trial court had found that the testimony of a BCA chemist, who had conducted various laboratory tests, did not establish that the

substance possessed by the defendant was marijuana. *Id.* at 130. The supreme court also rejected as insufficient the state's "non-scientific evidence," which concerned the quantity of the substance, the price for which the defendant had proposed to sell it, and the defendant's prior statement about the nature of the substance. *Id.* at 133-34. The supreme court emphasized that there are no "minimum evidentiary requirements in identification cases" and that the sufficiency of the evidence must be determined "on a case-by-case basis." *Id.* at 134.

In *State v. Robinson*, 517 N.W.2d 336 (Minn. 1994), the supreme court concluded that the evidence was insufficient to prove that the defendant possessed a sufficient quantity of a controlled substance. The defendant was charged with a first-degree controlled-substance crime based on his possession of 13 small packets of a white powder that appeared to be crack cocaine. *Id.* at 337-38. To prove that offense in the first degree, the state was required to prove that the defendant possessed ten or more grams of cocaine. *Id.* at 337. The state introduced the testimony of a scientist who had tested the contents of six or seven of the 13 packets, which were randomly selected and combined together into a single sample, which weighed less than nine grams. *Id.* at 338. The scientist determined that the mixed sample was cocaine with a purity of 87.6 percent. *Id.* The supreme court reversed the conviction on the ground that the scientific evidence was insufficient because the state could not rely on "extrapolation from random samples." *Id.* at 339. The supreme court reasoned, "The weight of the mixture is an essential element of the offense charged," which "must be proven by the state and proven beyond a reasonable doubt." *Id.* The

Robinson opinion applies in cases concerning marijuana. *State v. Galvan*, 532 N.W.2d 210, 210 (Minn. 1995) (*per curiam*).

More recently, in *State v. Olhausen*, 681 N.W.2d 21 (Minn. 2004), the supreme court upheld a conviction, despite the absence of scientific testing, based on abundant non-scientific evidence. The defendant was charged with three controlled-substance crimes after he agreed to sell one pound of methamphetamine to an undercover BCA agent, but the defendant fled before the sale was completed and discarded the alleged controlled substance during his flight. *Id.* at 24. Because the prosecutor did not have access to the substance, no scientific testing was performed. *Id.* at 28. The state's case relied on circumstantial evidence consisting of the undercover agent's testimony about his negotiations with the defendant, the agent's observations of the package that the defendant offered to sell, the statement of the defendant's supplier that the substance was methamphetamine, and the defendant's flight. *Id.* at 28. The supreme court affirmed the conviction on the ground that the state's circumstantial evidence was "compelling." *Id.* at 28. The supreme court noted its prior opinions in *Vail* and *Robinson* but distinguished them on the ground that, in those cases, "the state had possession of the entire amount of controlled substances at issue but failed to use adequate procedures to scientifically test" the substances, while in *Olhausen*, the defendant had "discarded the alleged controlled substance, thereby preventing the state from performing scientific tests." *Id.*

To summarize, there are no "prescribed minimum evidentiary requirements in identification cases," *i.e.*, cases in which an appellant argues that a substance alleged to be marijuana is not actually marijuana. *Vail*, 274 N.W.2d at 134. Rather, in such cases, an

appellate court must "examine the sufficiency of the evidence on a case-by-case basis." *Id.* The state may satisfy its burden of proof with "scientific evidence" based on laboratory tests of the alleged controlled substance. *Wiley*, 366 N.W.2d at 269 (affirming conviction); *Dick*, 253 N.W.2d at 278-79 (same). If an alleged offense depends on proof of a numerical threshold, that threshold is "an essential element of the offense charged," which "must be proven by the state and proven beyond a reasonable doubt." *Robinson*, 517 N.W.2d at 339 (reversing conviction); *see also Galvan*, 532 N.W.2d at 210 (applying *Robinson* to marijuana case).[3]

The supreme court has recognized that all types of cannabis contain tetrahydrocannabinols. *Vail*, 274 N.W.2d at 131. In light of the 2019 amendments to the definition of marijuana, the presence of delta-9 tetrahydrocannabinol in a concentration greater than 0.3 percent is an essential element of the offense of unlawful possession of marijuana. The state may prove the required concentration of delta-9 tetrahydrocannabinol with scientific evidence. *See Robinson*, 517 N.W.2d at 339 (analyzing scientific evidence of weight but concluding that evidence was insufficient because of inadequate random sampling). Alternatively, the state may prove the required concentration of delta-9

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[3]In *Robinson*, the supreme court stated that there may be exceptional cases in which "the risk of benign substitutes [is] so unlikely that random testing may legitimately permit an inference beyond a reasonable doubt that the requisite weight of the whole mixture is established." 517 N.W.2d at 340. But the supreme court also noted that the sale of simulated controlled substances was "common enough that it has achieved a criminal status of its own." *Id.* at 339 (citing Minn. Stat. § 152.097 (1992)). This case presents an analogous situation in that the legislature has recognized the lawful status of hemp. *See* Minn. Stat. §§ 18K.02, subd. 3; 152.01, subd. 9; 152.22, subd. 5a. That hemp is common enough to be recognized as lawful suggests that the 0.3-percent concentration threshold for marijuana is not within the exception described in *Robinson*.

tetrahydrocannabinol with "non scientific" or circumstantial evidence. *See Olhausen*, 681 N.W.2d at 27-29. It appears that the state also may, in appropriate circumstances, satisfy its burden of proof with a combination of scientific evidence and non-scientific evidence. *See Vail*, 274 N.W.2d at 134 (considering both types of evidence but concluding that "'additional factors' simply do not advance the state in satisfying its burden of proof, given the trial court's skepticism of the scientific evidence"). Thus, to prove that the leafy plant material possessed by Loveless is marijuana (as opposed to hemp), the state's evidence—whether scientific in nature or non-scientific and circumstantial in nature or a combination of the two types—must be sufficient to prove beyond a reasonable doubt that the concentration of delta-9 tetrahydrocannabinol is greater than 0.3 percent on a dry-weight basis.[4]

3. State's Evidence

In this case, the state introduced scientific evidence concerning the leafy plant material. The BCA forensic scientist testified that she performed a macroscopic visual examination with her naked eye, a microscopic visual examination with a microscope, a color test, and "GC-MS analysis," which we assume means a test using gas chromatography and mass spectrometry. Based on those tests, the forensic scientist

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[4]We are aware of only one foreign court that has considered this issue. That court has held that, to prove that a defendant possessed marijuana, the state must prove that the cannabis possessed by the defendant has a THC concentration that exceeds 0.3 percent. *State v. Crowder*, 385 P.3d 275, 278-81 (Wash. Ct. App. 2016) (reversing conviction), *rev. denied*, 393 P.3d 361 (Wash. 2017) (table). The requisite concentration may be proved by a combination of scientific and non-scientific evidence. *State v. Crocker*, 483 P.3d 115, 117-19 (Wash. Ct. App. 2021) (affirming conviction).

testified that the leafy plant material is marijuana. But she did not testify that she had conducted any tests to determine the concentration of delta-9 tetrahydrocannabinol in the leafy plant material. Without having determined that concentration, the forensic scientist did not have an adequate basis from which to conclude that the leafy plant material is marijuana rather than hemp.[5]

The state does not argue that this court should consider any non-scientific or circumstantial evidence that might prove that the leafy plant material possessed by Loveless is marijuana. Nonetheless, we are obligated to review the evidentiary record to determine whether it contains sufficient evidence to support the conviction. To determine whether a jury's guilty verdict is supported by circumstantial evidence, we begin by "identify[ing] the circumstances proved," we continue by "examin[ing] independently the reasonableness of the inferences that might be drawn from the circumstances proved," and we conclude by "determin[ing] whether the circumstances proved are consistent with guilt and inconsistent with any rational hypothesis except that of guilt." *Moore*, 846 N.W.2d at 88 (quotations omitted).

In this case, there is a limited amount of circumstantial evidence relevant to the identity of the leafy plant material. The state proved the following relevant circumstances: Leafy plant material was found in a bedroom inside a locked plastic tote box. The locked

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[5]In his principal brief, Loveless informed the court that, after the trial in this case, the BCA announced that it had implemented a testing procedure by which it can determine the concentration of delta-9 tetrahydrocannabinol in both leafy plant material and liquid mixtures. *See* Minn. Dep't of Pub. Safety, *BCA Implements THC Quantitation*, https://dps.mn.gov/divisions/bca/bca-divisions/forensic-science/Documents/BCAFSS_[-]THCQuant_12042020.pdf (last visited Sept. 2, 2021).

plastic tote box was found near other items that are associated with controlled substances, such as smoking pipes, rolling papers, a torch lighter, and a marijuana grinder. The locked plastic tote box was found near multiple vaping cartridges that contain amber-colored liquid mixtures containing tetrahydrocannabinols in an unknown concentration. But there was no circumstantial evidence concerning the origins or intended purposes of the leafy plant material in the plastic tote box. Loveless testified that he was unaware of any controlled substances in the home, and the state did not introduce any other evidence of the circumstances surrounding the leafy plant material that was found in the plastic tote box.

From the circumstances proved, a jury could draw an inference that is "consistent with guilt," specifically, an inference that the leafy plant material found inside the plastic tote box is cannabis with a concentration of delta-9 tetrahydrocannabinol that is greater than 0.3 percent. *See Moore*, 846 N.W.2d at 88. But for the evidence to be sufficient, the circumstances proved also must be "inconsistent with any rational hypothesis except that of guilt." *See id.* (quotation omitted). The state's circumstantial evidence in this case is weaker than the circumstantial evidence in both *Vail* and *Robinson*, which the supreme court deemed insufficient. *See Robinson*, 517 N.W.2d at 339; *Vail*, 274 N.W.2d at 134. The state's circumstantial evidence also is weaker than the circumstantial evidence in *Olhausen*, which was deemed sufficient because the defendant had discarded the alleged controlled substance, thereby preventing the state from performing scientific testing. *See Olhausen*, 681 N.W.2d at 28. In this case, the state's circumstantial evidence does not negate the rational hypothesis that the leafy plant material found in the plastic tote box is cannabis with a concentration of delta-9 tetrahydrocannabinol that is 0.3 percent or less, in

which case it would be "hemp," which is expressly excluded from the statutory definition of "marijuana." *See* Minn. Stat. §§ 18K.02, subd. 3; 152.01, subd. 9; 152.22, subd. 5a.

Thus, the state's evidence is insufficient to support Loveless's conviction of the offense charged in count 5.

B. Count 4: Liquid Mixture

We next consider Loveless's challenge to the sufficiency of the evidence supporting his conviction on count 4, in which the state alleged that the vaporizer cartridges contain liquid mixtures that include tetrahydrocannabinols.

The state charged Loveless with violating the following statute: "A person is guilty of controlled substance crime in the fifth degree . . . if . . . the person unlawfully possesses one or more mixtures containing a controlled substance classified in Schedule I, II, III, or IV . . . ." Minn. Stat. § 152.025, subd. 2(1). Schedule I is a list of controlled substances that includes "tetrahydrocannabinols." Minn. Stat. § 152.02, subd. 2(h)(2). Schedule I also includes "any natural or synthetic material, compound, mixture, or preparation that contains any quantity of the following substances, their analogs, isomers, esters, ethers, salts, and salts of isomers, esters, and ethers, whenever the existence of the isomers, esters, ethers, or salts is possible," unless such a substance has been "specifically excepted or . . . listed in another schedule":

> tetrahydrocannabinols naturally contained in a plant of the genus Cannabis, synthetic equivalents of the substances contained in the cannabis plant or in the resinous extractives of the plant, or synthetic substances with similar chemical structure and pharmacological activity to those substances contained in the plant or resinous extract, including, but not limited to, 1 cis or trans tetrahydrocannabinol, 6 cis or trans

> tetrahydrocannabinol, and 3, 4 cis or trans tetrahydrocannabinol.

Id., subd. 2(h)(2). These provisions concerning tetrahydrocannabinols have been unchanged since 2012. *See* Minn. Stat. § 152.02, subd. 2(h)(2) (2012); 2012 Minn. Laws ch. 240, § 1, at 8. Unlike the definition of marijuana, the inclusion of tetrahydrocannabinols in Minnesota's Schedule I does *not* make any exception for hemp or for a substance or mixture that has a concentration of delta-9 tetrahydrocannabinol that is 0.3 percent or less on a dry-weight basis.[6]

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[6]In this way, Minnesota's Schedule I is different from the federal Schedule I, which includes "Tetrahydrocannabinols, *except for tetrahydrocannabinols in hemp (as defined under section 1639o of title 7)*." 21 U.S.C. § 812(c), Schedule I(c)(17) (2018) (emphasis added). The italicized clause was added to the federal Schedule I in 2018. *See* Agriculture Improvement Act of 2018, Pub. L. No. 115-334, § 12619(b), 132 Stat. 5018 (2018). But no corresponding amendment was made to Minnesota's Schedule I after the change to the federal Schedule I. *See* Minn. Stat. § 152.02, subd. 2(h)(2) (2020).

We are aware that, during the first special session of 2019, the legislature enacted other laws that appear to recognize or assume the lawfulness of vaporizer cartridges containing low concentrations of delta-9 tetrahydrocannabinol. For example, the legislature enacted a statute providing that "a product containing nonintoxicating cannabinoids may be sold for human or animal consumption," if certain requirements are met. 2019 1st Spec. Session, ch. 9, art 11, § 76, at 427 (codified at Minn. Stat. § 151.72, subd. 3 (2020)). One of the requirements is that the manufacturer conduct testing to ensure that the product "does not contain a delta-9 tetrahydrocannabinol concentration that exceeds the concentration permitted for industrial hemp as defined in section 18K.02, subdivision 3." *Id.* (codified at Minn. Stat. § 151.72, subd. 4(a)(3) (2020)). Another requirement is that the product "bear a label that contains," among other things, "an accurate statement of the amount or percentage of cannabinoids found in" the product. *Id.* (codified at Minn. Stat. § 151.72, subd. 5(a)(3) (2020)). Nonetheless, the legislature did not amend the relevant provisions of chapter 152 to make it lawful to possess a liquid mixture with a low concentration of delta-9 tetrahydrocannabinol. If a statute's language is plain and its meaning is unambiguous, a court must interpret the statute according to its plain meaning, without resorting to canons of construction or legislative history. *See, e.g.*, *State v. Serbus*, 957 N.W.2d 84, 87 (Minn. 2021); *State v. Struzyk*, 869 N.W.2d 280, 288 n.5 (Minn. 2015). Here, the relevant provision of Schedule I is unambiguous. It states

In this case, the state introduced scientific evidence that the liquid mixtures in two vaporizer cartridges include tetrahydrocannabinols. The BCA forensic scientist testified that she performed a color test and a GC-MS analysis of the liquid mixtures and "identified tetrahydrocannabinols." Loveless did not cross-examine the forensic scientist on that point. The forensic scientist's testimony is sufficient to prove that Loveless possessed tetrahydrocannabinols.

Thus, the state's evidence is sufficient to support Loveless's conviction of the offense charged in count 4.

DECISION

The state's evidence is insufficient to prove beyond a reasonable doubt that the leafy plant material possessed by Loveless is marijuana. The state's evidence is sufficient to prove beyond a reasonable doubt that the liquid mixtures in the vaporizer cartridges possessed by Loveless contain tetrahydrocannabinols.

Affirmed in part and reversed in part.

simply, "tetrahydrocannabinols," without regard for the concentration of delta-9 tetrahydrocannabinol. Minn. Stat. § 152.02, subd. 2(h), 2(h)(2).