4/12/19

The following information is being provided pursuant to the requirements of Executive Order 2011-01K and Senate Bill 2 of the 129th General Assembly, which require state agencies, including the State of Ohio Board of Pharmacy, to draft rules in collaboration with stakeholders, assess and justify an adverse impact on the business community (as defined by S.B. 2), and provide an opportunity for the affected public to provide input on the following rules.

New

- 4729:9-1-01.1: Adds kratom as a schedule I controlled substance.

Comments on the proposed rules will be accepted until close of business on **April 30, 2019**. Please send all comments to the following email address: **rulecomments@pharmacy.ohio.gov**

In addition, please copy your comments to: **CSIPublicComments@governor.ohio.gov**

CSI - Ohio
The Common Sense Initiative

Business Impact Analysis

Agency Name: State of Ohio Board of Pharmacy

Regulation/Package Title: Controlled Substance Scheduling - Kratom

Rule Number(s):

New:

- 4729:9-1-01.1

Date: 4/12/2019

Rule Type:

New	5-Year Review
Amended	Rescinded

The Common Sense Initiative was established by Executive Order 2011-01K and placed within the Office of the Lieutenant Governor. Under the CSI Initiative, agencies should balance the critical objectives of all regulations with the costs of compliance by the regulated parties. Agencies should promote transparency, consistency, predictability, and flexibility in regulatory activities. Agencies should prioritize compliance over punishment, and to that end, should utilize plain language in the development of regulations.

Regulatory Intent

1. Please briefly describe the draft regulation in plain language.

New

- 4729:9-1-01.1: Adds kratom as a schedule I controlled substance.

2. Please list the Ohio statute authorizing the Agency to adopt this regulation.

The proposed rule is authorized by section 3719.44 of the Ohio Revised Code.

Section 3719.44 of the Ohio Revised Code authorizes the State Board of Pharmacy to do the following with respect to schedules I, II, III, IV, and V established in section 3719.41 of the Revised Code: Add a previously unscheduled compound, mixture, preparation, or substance to any schedule.

3. **Does the regulation implement a federal requirement? Is the proposed regulation being adopted or amended to enable the state to obtain or maintain approval to administer and enforce a federal law or to participate in a federal program?**

The rule does not implement a federal requirement.

4. **If the regulation includes provisions not specifically required by the federal government, please explain the rationale for exceeding the federal requirement.**

These rules exceed federal requirements. Pursuant to section 3719.44 of the Revise Code, the Board may add a previously unscheduled compound, mixture, preparation, or substance to schedule I when it appears that there is a high potential for abuse, that it has no accepted medical use in treatment in this state, or that it lacks accepted safety for use in treatment under medical supervision.

5. **What is the public purpose for this regulation (i.e., why does the Agency feel that there needs to be any regulation in this area at all)?**

After review of all available data, the State of Ohio Board of Pharmacy finds that kratom meets the following criteria:

- High potential for abuse;
- That it has no accepted medical use in treatment in this state;
- That it lacks accepted safety for use in treatment under medical supervision; and
- Poses a risk to the public health of the citizens of this state.

6. **How will the Agency measure the success of this regulation in terms of outputs and/or outcomes?**

The success of the regulation will be measured by having rules written in plain language, licensee compliance with the rules, and minimal questions from licensees regarding the provisions of the rule.

Development of the Regulation

7. Please list the stakeholders included by the Agency in the development or initial review of the draft regulation.

This rule was also posted for initial public comment. The Board also reviewed data from state, federal and international agencies as well as peer reviewed articles in developing the rule.

Prior to filing with CSI, the rule was reviewed and approved by the Board of Pharmacy.

8. What input was provided by the stakeholders, and how did that input affect the draft regulation being proposed by the Agency?

During the public comment period, the Board received the following input from stakeholders:

- *Cleveland Clinic: Cleveland Clinic fully supports this reclassification as we have seen the harmful effects of this drug in our community.*
- *Columbus Public Health: Public health professionals have encountered and understand the risks posed by kratom as an unregulated substance. As stewards of public health, we are concerned by the lack of regulation coupled by the ease of availability, observed by our Environmental Health staff in casual café settings.*

  This classification is crucially needed due to the public health risk this substance presents, particularly because of its combined usage with other illicit drugs, like opioids.
- *This petition is affirmed by 22,765 American citizens who support continued access to safe kratom products, including 2,847 Ohio citizens, who respectfully request that the Ohio Board of Pharmacy follow the science on the safety of kratom, and focus attention on the adulterated and contaminated products that use kratom in a mixture or blended with other dangerous substances. It has never been the practice of regulatory agencies at the federal or state level to ban any substance because it has been misused by a bad actor in creating a dangerous adulterated product.*

  The decision of the Ohio Board of Pharmacy will have an impact on kratom consumers throughout the United States because of the respect and influence that is accorded to your Board. We believe it is, therefore, essential that the public policy on access to safe kratom products be based on science and accurate safety data rather than uncorroborated and unverified information currently being circulated by the U.S. Food and Drug Administration.
- *The Botanical Educational Alliance has a factor analysis that were sent to the DEA during Fall 2016. The BEA study came to the conclusion that kratom is master perfect ideals safe, and the scheduling recommendation was to not schedule kratom or any of it's*

distinct alkaloids under the Controlled Substance Act. Because kratom achieves mastery of perfect ideal safety profile unconditionally.

- *There are nearly 5 million Americans who safely use kratom, including tens of thousands here in Ohio. Please follow the science regarding kratom. New evidence on kratom was recently posted on the DrugFacts website of the National Institute on Drug Abuse (NIDA) on September 20, 2018 that clarifies the most important safety issue on kratom. In an update to its data, NIDA points out that "most kratom associated deaths appear to have resulted from adulterated products (other drugs mixed with kratom) or taking kratom along with other potent substances." The right public policy on kratom is to ban the sale of adulterated kratom products. The DEA has never scheduled or banned a substance because it was adulterated by another toxic or dangerous addictive substance.*

9. What scientific data was used to develop the rule or the measurable outcomes of the rule? How does this data support the regulation being proposed?

A review of scientific data can be found as Appendix I to this document.

10. What alternative regulations (or specific provisions within the regulation) did the Agency consider, and why did it determine that these alternatives were not appropriate? If none, why didn't the Agency consider regulatory alternatives?

The Board did not consider any alternative regulations, as such alternatives do not exist when making the decision to add a compound as Schedule I controlled substance.

11. Did the Agency specifically consider a performance-based regulation? Please explain. ***Performance-based regulations define the required outcome, but don't dictate the process the regulated stakeholders must use to achieve compliance.***

The agency did not consider a performance-based regulation for this rule package. Performance-based regulations cannot be achieved when adding a compound as a Schedule I controlled substance.

12. What measures did the Agency take to ensure that this regulation does not duplicate an existing Ohio regulation?

The Board of Pharmacy's Director of Policy and Communications reviewed the proposed rule to ensure that the regulations do not duplicate an existing Ohio regulation.

13. Please describe the Agency's plan for implementation of the regulation, including any measures to ensure that the regulation is applied consistently and predictably for the regulated community.

The rule will be posted on the Board of Pharmacy's web site, information concerning the rules will be included in materials e-mailed to licensees, and notices will be sent to associations, individuals and groups. Board of Pharmacy staff are also available via phone or email to answer questions regarding implementation of the rules. In addition, the Board's compliance agents are trained to educate licensees on current and/or new regulations during on-site inspections.

Board of Pharmacy staff receive regular updates on rules via a monthly internal newsletter, biannual staff meetings featuring a regulatory update, mandatory all-day law reviews for new employees, email updates and quarterly webinars from the Director of Policy and feedback from the Board's legal department for every citation submitted.

Adverse Impact to Business

14. Provide a summary of the estimated cost of compliance with the rule. Specifically, please do the following:

a. Identify the scope of the impacted business community;

The rule package impacts the following:

- Businesses selling kratom products.

b. Identify the nature of the adverse impact (e.g., license fees, fines, employer time for compliance); and

Violation of this rule may result in criminal penalties for businesses selling kratom products in or into the state.

c. Quantify the expected adverse impact from the regulation.

New

- 4729:9-1-01.1: Adds kratom as a schedule I controlled substance. The expected adverse impact will be the closure of several kratom-only businesses including. An internet search found three kratom-specific business as well as a kratom vending machine that will no longer be permitted to operate if the rule goes into effect. Other entities that advertise kratom sales such as *High on the Hill* and *The Joint* may also experience revenue loss.

15. Why did the Agency determine that the regulatory intent justifies the adverse impact to the regulated business community?

The Board determined that the regulatory intent justifies the impact on business because kratom is an unregulated substance that has no accepted medical use in treatment in this state, lacks accepted safety for use in treatment under medical supervision, and poses a risk to the public health of the citizens of this state.

Regulatory Flexibility

16. Does the regulation provide any exemptions or alternative means of compliance for small businesses? Please explain.

This rule does not provide any exemptions or alternative means of compliance for small businesses. The law does not differentiate on the size of the business and therefore the regulation is uniform across Ohio.

17. How will the agency apply Ohio Revised Code section 119.14 (waiver of fines and penalties for paperwork violations and first-time offenders) into implementation of the regulation?

Not applicable for this rule.

18. What resources are available to assist small businesses with compliance of the regulation?

Board of Pharmacy staff is available by telephone and e-mail to answer questions. Board staff members also provide presentations to groups and associations who seek updates on current regulations and host regional meetings to discuss changes to Ohio laws and rules. Additionally, staff are trained to educate licensees and the public on compliance with all Board of Pharmacy rules and regulations.

4729:9-1-01.1 - Kratom.

The state board of pharmacy hereby schedules the following as a schedule I controlled substance:

(A) Mitragynine (to include synthetic equivalents as well as mitragynine naturally contained in the plant of the genus and species name: Mitragyna speciosa Korth, also known as kratom) its isomers, esters, ethers, salts and salts of isomers, esters and ethers.

(B) 7-Hydroxymitragynine (to include synthetic equivalents as well as 7-hydroxymitragynine naturally contained in the plant of the genus and species name: Mitragyna speciosa Korth, also known as kratom) its isomers, esters, ethers, salts and salts of isomers, esters and ethers.

RESOLUTION: CLASSIFICATION OF KRATOM AS A SCHEDULE I CONTROLLED SUBSTANCE

Section 1: Summary

The State of Ohio Board of Pharmacy (BOP), pursuant to section 3719.44 of the Ohio Revised Code, proposes the placement of the following into Schedule I:

Mitragynine and 7-hydroxymitragynine, which are the main active constituents of the plant kratom.

Section 2: Background

Pursuant to section 3719.44 the Board may add or transfer a compound, mixture, preparation, or substance to schedule I when it appears that there is a high potential for abuse, that it has no accepted medical use in treatment in this state, or that it lacks accepted safety for use in treatment under medical supervision.

In making a determination to add an unscheduled compound, the Board is required to consider the following 8 criteria:

(1) The actual or relative potential for abuse;
(2) The scientific evidence of the pharmacological effect of the substance;
(3) The state of current scientific knowledge regarding the substance;
(4) The history and current pattern of abuse;
(5) The scope, duration, and significance of abuse;
(6) The risk to the public health;
(7) The potential of the substance to produce psychic or physiological dependence liability; and
(8) Whether the substance is an immediate precursor.

Section 3: Evaluating Kratom Under the Eight Criteria

(1) The actual or relative potential for abuse.

Kratom can cause tolerance and withdrawal symptoms that make abstinence from the substance difficult without professional help. Cases of kratom induced dependence and

withdrawal managed with medication treatment are noted in medical literature.[i] [ii] [iii] [iv]

Scientists at the US Food and Drug Administration (FDA) first analyzed the chemical structures of the 25 most prevalent compounds in kratom. From this analysis, the agency concluded that all of the compounds share the most structural similarities with controlled opioid analgesics, such as morphine derivatives. Further analysis by the FDA determined that 22 (including mitragynine) of the 25 compounds in kratom bind to mu-opioid receptors. The FDA further notes:

> *The data from the PHASE model shows us that kratom compounds are predicted to affect the body just like opioids. Based on the scientific information in the literature and further supported by our computational modeling and the reports of its adverse effects in humans, we feel confident in calling compounds found in kratom, opioids.*[v]

(2) The scientific evidence of the pharmacological effect of the substance.

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) notes that mitragynine and 7-hydroxymitragynine are selective and full agonists of the mu-opioid receptor. The receptor agonist effect of kratom alkaloids is antagonized by the opioid receptor antagonist naloxone. In addition, 5-HT_{2a} and postsynaptic α_2-adrenergic receptors, as well as neuronal Ca^{2+} channels are also involved in the unique pharmacological and behavioral activity of mitragynine.

The EMCDDA reports the effects of kratom in humans are dose-dependent: small doses produce 'cocaine-like' stimulation while larger dosages cause 'morphine-like' sedative-narcotic effects.

> *After taking a few grams of dried leaves, the invigorating effects and euphoria are felt within 10 minutes and last for one to one and a half hours. Kratom users report increased work capacity, alertness, sociability and sometimes heightened sexual desire. The pupils are usually normal or very slightly contracted; blushing may be noted. In one of the few human clinical experiments, a 50 mg oral dose of mitragynine produced motor excitement, followed by giddiness, loss of motor coordination, and tremors of the extremities and face.*
>
> *Kratom taken in large, sedating doses corresponding to 10–25 g of dried leaves may initially produce sweating, dizziness, nausea and dysphoria but these effects are shortly superseded with calmness, euphoria and a dreamlike state that last for up to six hours.*

Appendix I

In animal studies, the antinociceptive and cough-suppressant effects of mitragynine were comparable to those of codeine. In mice, 7-hydroxymitragynine was several times more potent analgesic than morphine even upon oral administration.[vi]

Kratom is slightly toxic to animals. Mice chronically treated with 7-hydroxymitragynine developed tolerance, cross-tolerance to morphine and withdrawal signs that could be precipitated by naloxone administration.[vii]

(3) The state of current scientific knowledge regarding the substance.

The metabolism of mitragynine in humans occurs via hydrolysis of the side-chain ester, *O*-demethylation of the methoxy groups, oxidative and/or reductive transformations, and the formation of glucuronide and sulfate conjugates. In a man who fatally overdosed propylhexedrine and kratom, the postmortem mitragynine concentrations ranged from 0.01 mg/kg to 1.20 mg/l.[viii]

The FDA through their Public Health Assessment via Structural Evaluation (PHASE) methodology found that there is no evidence to indicate that kratom is safe or effective for any medical use. The compounds in kratom were found to bind to mu-opioid receptors similar to other opioids. The FDA also found serious side effects associated with kratom, including seizures and respiratory depression.[ix]

(4) The history and current pattern of abuse.

Kratom, which contains the main active alkaloids mitragynine and 7-hydroxymitragynine, has a long history of use in Southeast Asia as an opium substitute. Kratom is also known in Southeast Asia as thang, thom, krathom, kakuam, ketum, and biak. In recent years, the presence of the psychoactive plant kratom has increased significantly on the recreational market in the United States. It has been marketed in the US as a plant-based product with broad healing properties mostly sold in smoke shops, gas stations, and over the internet.

On May 22, 2018, the FDA issued three warning letters to three marketers and distributors of kratom products for illegally selling unapproved kratom-containing drug products. These products were marketed with unproven claims about treating pain, lowering blood pressure, treating cancer, and reducing neuron damage caused by strokes.[x]

In a 2016 publication, the Centers for Disease Control (CDC) characterized kratom exposures reported to poison centers and uploaded to the National Poison Data System

(NPDS) from January 2010 through December 2015. During the stated timeframe, U.S. poison centers received 660 calls related to kratom exposure. Of the calls reported, 487 (73.8%) reported intentional exposure to kratom, and 595 (90.2%) reported ingestion of the drug. In addition to reports of isolated exposures to kratom (428 (64.8%)), reports of kratom being used with other substances (ethanol, benzodiazepines, narcotics, acetaminophen, and other botanicals) were also recorded. Additionally, forensic laboratory analyses of drug evidence have identified kratom/mitragynine, along with synthetic cannabinoids and synthetic opioids during the analyses of products seized on the illicit market. The consumption of kratom individually, or in conjunction with alcohol or other drugs, is of serious concern as it can lead to severe adverse effects and death.[xi]

According to research conducted by the FDA, no marketer has sought to develop a drug that includes kratom in the US. Kratom is a controlled substance in 16 countries, including Thailand and Malaysia where it is found naturally. It is also banned in several states including Alabama, Arkansas, Indiana, Vermont, Rhode Island, Wisconsin and the District of Columbia have banned kratom, along with at least three cities — Denver, San Diego and Sarasota, Florida.[xii] Currently, the Drug Enforcement Administration (DEA) has listed kratom as a Drug and Chemical of Concern.[xiii]

(5) The scope, duration, and significance of abuse.

According to the DEA, reports from law enforcement indicate that kratom is being imported for widespread distribution to the public within the United States. Between February 2014 and July 2016, over 55,000 kilograms (kg) of kratom material were encountered by law enforcement at various ports of entry within the United States. Additionally, over 57,000 kg of kratom material offered for import at numerous ports of entry, between 2014 and 2016, are awaiting an FDA admissibility decision. The amount of kratom currently seized or awaiting an admissibility decision by law enforcement, between 2014 and 2016, is enough to produce over 12 million doses of kratom.[xiv]

Drug reports pertaining to the trafficking, distribution, and abuse of kratom/mitragynine were analyzed by Federal, State, and local forensic laboratories. According to data from the System to Retrieve Information from Drug Evidence (STRIDE) and STARLiMS (a web-based, commercial laboratory information management system), from January 2006 through March 2016, there were 293 records for kratom and/or mitragynine. From January 2010 through May 2016, the National Forensic Laboratory Information System (NFLIS) registered 720 reports containing mitragynine. NFLIS and STRIDE/STARLiMS records/reports were reported across 43 States, thus showing the widespread abuse and trafficking of kratom/mitragynine. The presence of these substances during drug evidence analyses demonstrates the presence of these substances on the recreational drug market.[xv]

Appendix I

Growing concern over the use of kratom is reflected in the increased requests for analyses of mitragynine and 7-hydroxymitragynine in human toxicology panels (blood/urine samples) to private analytical laboratories. These analyses have been requested by addiction treatment facilities/pain management doctors, drug courts, medical examiner/coroner offices, drug testing facilities, state laboratory systems, state police department, and private entities. The number of positive results from these analyses increased as follows: 31 positive results from August 2012 to July 2013 for mitragynine and/or 7-hydroxymitragynine; 274 positive results for mitragynine between July 2013 and May 2014; 555 positive results for mitragynine between December 2014 and March 2016. According to DEA, the increasing trend in the number of positive results from these analyses demonstrates the growing abuse and popularity of these substances and the concern related to the abuse of this plant material and its psychoactive constituents.[xvi]

A Drug Trend Report from the Ohio Substance Abuse Monitoring Network (June 2017 - January 2018) found that Kratom is available in the Akron-Canton and Cleveland regions. Notably, participants in the Akron-Canton region reported being able to purchase the drug from heroin dealers and through Internet purchase, while community professionals indicated that the drug can be purchased at head shops. Participants in the Cleveland region reported being able to purchase the drug in powdered form and in capsules. Participants reported that the drug looks similar to brown powdered heroin, produces similar effects as heroin, and is primarily used by individuals subject to drug screening and by people addicted to heroin who use the drug to alleviate opiate withdrawal symptoms. Participants reported that the most common route of administration for kratom is intravenous injection (aka "shooting"). Participants in the Akron-Canton region estimated that out of 10 kratom users, seven would shoot the drug and three would orally consume the drug (including drinking it as a tea).[xvii]

The latest Drug Trend Report from the Ohio Substance Abuse Monitoring Network (January 2018 - June 2018) reported the following:

That while participants discussed the use of kratom to alleviate opiate withdrawal, a few participants continued to express that kratom can be abused to produce a heroin-like high. These participants stated: "High like heroin … I remember [when I took too much]; [Kratom] does produce a heroin type effect and there's a big push (an appeal) for that; Kratom doesn't show up on drug tests." Law enforcement expressed similar ideas about kratom: "It is available, usually you see like little Internet ads here and there or flyers posted offering the sale of it. It's actually not an illegal drug … but it is apparently abused; The gist of it is it's usually a powder … you order it in a powder form, and if take a bunch of it, it has opiate like effects."[xviii]

Additionally, Ohio poison control centers reported an increase in the number of calls related to kratom exposure. According to a 2019 study by Nationwide Children's Hospital, the annual number of calls related to kratom exposure in Ohio increased dramatically, going from 13 calls in 2011 to 682 calls in 2017. Almost two-thirds (65%) of these exposures occurred from 2016 through 2017-the two most recent years of the study.[xix]

(6) The risk to the public health.

Information from the scientific literature also demonstrates the health risks associated with kratom use. Reports of hepatotoxicity, psychosis, seizure, weight loss, insomnia, tachycardia, vomiting, poor concentration, hallucinations, and death associated with kratom use have been documented.[xx]

Numerous deaths associated with kratom, which contains the main active constituents mitragynine and 7-hydroxymitragynine, have been reported indicating that this substance is a risk to the public health. Deaths related to kratom exposure have been reported in the scientific literature beginning in 2009-2010, with a cluster of nine deaths in Sweden from use of the kratom product "Krypton". Since then, five more deaths related to kratom exposure were reported in the scientific literature, and sixteen other deaths related to kratom exposure, have been confirmed by autopsy/medical examiner reports (mitragynine and/or 7-hydroxymitragynine were identified in biological samples). Of these deaths, 15 occurred between 2014 and 2016.[xxi]

In November 2017, the FDA published a public health advisory urging consumers not to use kratom or any compounds in the plant.[xxii] In February 2018, the FDA was aware of 44 death associated with kratom-containing products and reports of kratom being laced with other opioids like hydrocodone. In some cases, kratom was being used in combination with other drugs, including illicit drugs, prescription opioids, benzodiazepines and over the counter medications. According to FDA, mixing kratom with other opioids is a serious concern because the activity of kratom at opioid receptors has similar risks to combining FDA-approved opioids. Additionally, the agency found that there may be serious side effects associated with kratom including seizures, liver damage, withdrawal symptoms and respiratory depression.[xxiii]

Recent data from the Ohio Department of Health found that between 2016 – 2018, there were 15 unintentional drug overdose deaths where kratom was mentioned on the death certificate.[xxiv] [xxv]

There are also concerns regarding the conditions under which the drug is produced. For example, there was recently a multi-state recall of kratom products that tested positive for salmonella contamination. On April 6, 2018, in response to a mandatory recall order from the FDA after several of its kratom products were found to contain *Salmonella*,

Appendix I

Triangle Pharmanaturals, LLC of Las Vegas, NV, initiated a recall of such products. As of April 17, 2018, the firm is recalling all kratom powder products it manufactured, processed, packed and/or held from April 4, 2017 to present. This recall includes at least 26 different products. As of May 24, 2018, a total of 199 people infected with the outbreak strains of *Salmonella* were reported from 41 states. According to FDA, thirty-eight percent of ill people were hospitalized, and no deaths were reported.[xxvi]

In addition, analysis of kratom products found the presence of heavy metals:

- In November 2018, the FDA reported its scientists tested 26 separate kratom products obtained by field investigators and found the presence of heavy metals, including lead and nickel, at levels not considered safe for human consumption.[xxvii]
- In April 2019, the FDA reported that it had conducted laboratory testing of 30 different kratom products from a variety of sources to determine if they contain heavy metals. The analysis found significant levels of lead and nickel at concentrations that exceed safe exposure for oral daily drug intake.[xxviii]

Case reports also highlight the potential health risks associated with kratom, including:

- A 1-day old infant displayed opioid withdrawal symptoms due to kratom exposure. The baby received intravenous glucose for hypoglycemia and was started on methadone for presumptive opioid withdrawal syndrome. During her pregnancy, the mother admitted to taking 2 herbal supplements to help her relax.[xxix]

- A case of kratom addiction in a 37-year-old woman with a severe opioid-like withdrawal syndrome that was managed successfully with symptom-triggered clonidine therapy and scheduled hydroxyzine.[xxx]

- A 29-year-old man reported that he had been purchasing Kratom extract via the Internet and injecting it intravenously several times daily. The patient was distressed by his increasing use and attempted to stop using the Kratom extract. He noted increasing withdrawal symptoms: "runny nose, watery eyes, goosebumps, the pukes and the shakes."[xxxi]

- A 58-year-old Caucasian man with schizoaffective disorder was admitted to the hospital for jaundice and liver injury suspected to be resulting from kratom use. One year previously (September 2013), he had ingested kratom powder (1 tablespoon daily) for 3 months to relieve anxiety and aid in relaxation.[xxxii]

(7) The potential of the substance to produce psychic or physiological dependence liability.

The FDA through their Public Health Assessment via Structural Evaluation (PHASE) methodology found that there is no evidence to indicate that kratom is safe or effective for any medical use. The compounds in kratom were found to bind to mu-opioid receptors similar to other opioids.

A 2014 study of regular Kratom users found that more than half of the regular users (>6 month of use) developed severe dependence problems, while 45 percent showed a moderate kratom dependence. Such dependence problems included physical and psychological withdrawal symptoms.[xxxiii] Additionally, a 2018 case report from Canada found evidence of maternal and neonatal kratom dependence and withdrawal.[xxxiv]

The European Monitoring Centre for Drugs and Drug Addiction as noted that regular kratom use can produce dependence. Such dependence produces withdrawal symptoms including include craving, weakness and lethargy, anxiety, restlessness, rhinorrhea, myalgia, nausea, sweating, muscle pain, jerky movements of the limbs, tremor as well as sleep disturbances and hallucinations.[xxxv]

(8) Whether the substance is an immediate precursor.

Kratom is not known to be an immediate precursor.

Section 5: Finding of the Board

Section 3719.44 of the Ohio Revised Code authorizes that the State of Ohio Board of Pharmacy may add or transfer a compound, mixture, preparation, or substance to schedule I when it appears that there is a high potential for abuse, that it has no accepted medical use in treatment in this state, or that it lacks accepted safety for use in treatment under medical supervision.

After a thorough review of all available data, the State of Ohio Board of Pharmacy finds that kratom:

1. Has a high potential for abuse;
2. Has no accepted medical use in treatment in this state;
3. Lacks accepted safety for use in treatment under medical supervision; and
4. Poses a risk to the public health of the citizens of this state.

Appendix I

[i] A Case Report of Kratom Addiction and Withdrawal. http://www.wisconsinmedicalsociety.org/_WMS/publications/wmj/pdf/115/1/49.pdf

[ii] Kratom, A Substance of Increasing Concern. https://pcssnow.org/event/kratom-a-substance-of-increasing-concern/

[iii] Treatment of Kratom Withdrawal and Addiction With Buprenorphine. https://journals.lww.com/journaladdictionmedicine/Citation/2018/12000/Treatment_of_Kratom_Withdrawal_and_Addiction_With.15.aspx

[iv] Treatment of Kratom Dependence With Buprenorphine-Naloxone Maintenance. https://journals.lww.com/journaladdictionmedicine/Abstract/2018/12000/Treatment_of_Kratom_Dependence_With.12.aspx

[v] Office of the Commissioner. (2018, February 6). Press Announcements - Statement from FDA Commissioner Scott Gottlieb, M.D., on the agency's scientific evidence on the presence of opioid compounds in kratom, underscoring its potential for abuse. Retrieved from https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm595622.htm

[vi] The European Monitoring Centre for Drugs and Drug Addiction. Kratom (Mitragyna speciosa) drug profile. http://www.emcdda.europa.eu/publications/drug-profiles/kratom#pharmacology

[vii] The European Monitoring Centre for Drugs and Drug Addiction. Kratom (Mitragyna speciosa) drug profile. http://www.emcdda.europa.eu/publications/drug-profiles/kratom#pharmacology

[viii] The European Monitoring Centre for Drugs and Drug Addiction. Kratom (Mitragyna speciosa) drug profile. http://www.emcdda.europa.eu/publications/drug-profiles/kratom#pharmacology

[ix] Office of the Commissioner. (2017, November 14). Press Announcements - Statement from FDA Commissioner Scott Gottlieb, M.D. on FDA advisory about deadly risks associated with kratom. Retrieved from https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm584970.htm

[x] Press Announcements - FDA warns companies selling illegal, unapproved kratom products marketed for opioid cessation, pain treatment and other medical uses. Retrieved from https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm608447.htm

[xi] United States Drug Enforcement Administration. Schedules of Controlled Substances: Temporary Placement of Mitragynine and 7-Hydroxymitragynine Into Schedule I. https://www.federalregister.gov/documents/2016/08/31/2016-20803/schedules-of-controlled-substances-temporary-placement-of-mitragynine-and-7-hydroxymitragynine-into?utm_campaign=pi+subscription+mailing+list&utm_medium=email&utm_source=federalregister.gov

[xii] What's Kratom, and Why Are States Banning It? Governing Magazine. http://www.governing.com/topics/health-human-services/sl-kratom-state-ban.html

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Appendix I

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