



**Risk assessment report concerning
Magic mushrooms (psilocin and psilocybin)**

Coordination point Assessment and Monitoring new drugs (CAM)
C/o Inspection of Health Care (IGZ)
Parnassusplein 5, 2500 EJ The Hague
Tel nr: 070-3407960
Fax nr: 070-3407159
E-mail: cam.igz@igz.nl

CAM

The Hague February 2000

CONTENTS

1. Management summary	3
2. Risk assessment	4
3. Conclusions and recommendations	8
Appendix	
1. Information rapport mushrooms	10
2. Composition risk assessment commission, procedure and criteria	17
3. Possible measures	20
4. Chronological description of the mushroom procedure	22
5. Notions and abbreviations	23

1 Management summary

The Coordination point Assessment and Monitoring new drugs (CAM) has made risk assessment for psychotropic mushrooms, which contain the substances psilocin and psilocybin.

Because there is no physical or mental dependence, the acute intoxication is limited to panic and anxiety attacks and in case of chronological intoxication, at the worst flashbacks can occur.

Therefore there is no risk for the individual health when magic mushrooms are used.

The product is relative easily to get and there is little adequate information available for users. The quality of the product is unreliable and the awareness of quality by those who sell it is normally absent. On the other hand the proportions of the usage, the vulnerability of the user, the number and the seriousness of reports of incidents are low. The risk for the public health is therefore estimated as very low.

This drug influences the ability to react (i.e. in traffic) in a negative way, but the drug gives no cause of violent behaviour by the user. Because the use takes place at home or outside city limits, there is no question of annoyance or disturbance for citizens. The risk of the disturbance of public order / peace is therefore assessed as very low.

There is no risk of criminal involvement. At most some individuals from the smart shop circuit got connections with the “designer drugs scene”.

Compared to other drugs, (the CAM has made risk assessment rapports for (MBDB, MTA and GHB)), Psilocybe mushrooms score very low on the scale of risk assessment.

Looking at the above, the CAM recommends quality restrictions on the product Psilocybe mushrooms (i.e. standardization, cleanliness, labelling) and the trade in Psilocybe mushrooms (i.e. responsible information supply) and by doing this, creating a limited market for mushrooms. The result of the risk assessment gives no reason for a prohibition of Psilocybe mushrooms.

2 Risk assessment

Subjoined are the arguments and the remarks described per criteria (numbered), that were discussed by the members of the risk assessment committee. The average score given by the members is written down below.

2.1 Risks concerning the health of the individual

1) Level of risk of physical dependence

Physical dependence does not occur with mushrooms.

1. none (1.1)	2. very low	3. possible	4. high	5. very high
----------------------	-------------	-------------	---------	--------------

2) Level of psychological dependence

It depends on which definition of dependence of the mind is used. If this is the same as an addiction, then there is no risk. However, there are users, who like the experience in such a way, that they would like to do it again, in such a case you could say there is a very low psychological dependence.

1. none (1.8)	2. very low	3. possible	4. high	5. very high
----------------------	-------------	-------------	---------	--------------

3) Level of the risk of acute toxicity

Every now and then there are incidents where medical assistance is required (first aid, hospital admission). This is usually caused by anxiety- and panic attacks. The somatic effects (blood-pressure, heartbeat etc.) are very low. The setting is very important: inexperienced tourists who are in an unfamiliar country use all kinds of (soft) drugs in a short period of time. When anxiety- and panic attacks occur, the use of mushrooms cannot always be held as the only cause.

1. none	2. very low(2.3)	3. possible	4. high	5. very high
---------	-------------------------	-------------	---------	--------------

4) Level of the risk of chronic toxicity

Psilocybe mushrooms mostly used experimental, long term use is very rare. There are examples in other cultures where people have used mushrooms during their life on a regular base, without any symptoms of chronic toxicity. There are however users which after single use experience flashbacks during several weeks lasting till a few months afterwards. About mutagenetic and teratogenic is not enough information available to draw any conclusions, but it does not lie in the line of logic, that Psilocybe mushrooms would have this aspect. Just like some other soft drugs, the use of Psilocybe mushrooms by mentally unbalanced people can be a trigger to psychological problems.

1. none	2. very low	3. possible	4. high	5. very high
---------	--------------------	-------------	---------	--------------

2.2 Risks for the public health

5) Level of the risk concerning the proportion and frequency of use and the possible increase of use.

Psilocybe mushrooms are less used than XTC; which is used remarkably less than cannabis. The use throughout the country is very low (ever-used 1,6%), with younger people and with certain populations (people who go out, tourists, truants) the use is highest. Most of the use is caused by experimental behaviour, this ends after a few times. Many users mention that they don't really like the experience; one becomes unsociable, it is not to be compared with the empathic influence of XTC and it is therefore not suitable for use at parties.

1. None	2. very Low (2.4)	3. Possible	4. High	5. Very high
---------	--------------------------	-------------	---------	--------------

6) Level of risk concerning the vulnerability of the user

This concerns young people (who are also using other supplements) who are still growing up. The Smartshop branch is telling that they advise people under the age of 18 not to use Psilocybe mushrooms. Mentally unbalanced persons are also slightly more at risk. (see 4.)

1. none	2. very low (2.8)	3. possible	4. high	5. very high
---------	--------------------------	-------------	---------	--------------

7) Level of risk caused by the absence of adequate usage information

The chance that mushrooms are used wrong is present, but even when mushrooms are used in a wrong way; it seems that this poses few problems. Some owners of Smartshops or salesperson are very good informed, others not at all. Sometimes the turnover seems to be more important than supplying the customer of adequate information. In tourist shops this is more often true than in Smartshops.

1. none	2. very low	3. possible	4. high	5. very high
---------	-------------	--------------------	---------	--------------

8) Level of risk concerning the availability of the product

Mushrooms are not only sold in smart shops; also in grow shops, head shops and on the Internet are mushrooms available. The number sales points vary per region. In Amsterdam and the border areas are relative a lot of sales points. It is quite easy to get mushrooms. The stock of mushrooms per Smartshop is a large. There are estimations that 50% of the turnover of a Smartshop are coming from mushrooms.

1. none	2. very low	3. possible	4. high	5. very high
---------	-------------	--------------------	---------	--------------

9) Level of risk by unreliable quality of the product

There seems to be no big variation in composition, concentration and dosage. The biological variation of the active ingredient substance is about 1% till 3,5%. The differences don't seem to cause major problems. In most cases there is no standardization of this natural product. It can be infected with fungi and mites. There is a certain risk of mistaken identification with poisonous species. Looking at the facts that it is easy to get Psilocybe mushrooms and the small number of medical incidents, there doesn't seem to be a great deal wrong with the quality.

1. none	2. very low (2.9)	3. possible	4. high	5. very high
---------	--------------------------	-------------	---------	--------------

10) Level of risk caused by an unreliable distribution, sales points and traders

Of few smart shop owners is known that they have connections with the 'designer drugs scene'. A few smart shop owners do not want to tell who supply their magic mushrooms. In this branch the quality awareness isn't very high, there are exceptions. This is usually the case with tourist shops where mushrooms are also sold.

1. none	2. very low	3. possible	4. high	5. very high
---------	-------------	--------------------	---------	--------------

11) Level of risk measured by cause and number of reports of incidents

The number of reports a year did increase (from 5 to 20), but the seriousness of the incidents did not. Medical assistance was mainly necessary because anxiety and panic attacks occurred.

1. none	2. very low (2.5)	3. possible	4. high	5. very high
---------	--------------------------	-------------	---------	--------------

2.3 Risks for public safety and order

12) Level of risk concerning the frequency and seriousness of possible annoyance for citizens caused by sale and use

The sale points of mushrooms don't cause any annoyance and the use of Psilocybe mushrooms usually takes place at home or in nature. During the experience the users are focused on 'their own world'. Only when a panic attack occurs one might possibly address or bother citizens.

1. none (1.4)	2. very low	3. possible	4. high	5. very high
----------------------	-------------	-------------	---------	--------------

13) Level of risk caused by the tendency to violence

When anxiety and panic attacks occur users can react aggressive when they are appealed (by the competent authority). The number of panic and anxiety reactions is rather small. (see 11.)

1. none (1.7)	2. low	3. possible	4. high	5. very high
----------------------	--------	-------------	---------	--------------

14) Level of risk caused by the influence of the product on the ability to react

There hasn't been much investigation on this matter, but it is to be expected that this product influence the ability to react. Hallucinogens can cause changes in the way of acting and seeing, which can lead to dangerous situations for psycho motoric abilities, especially during driving or working with equipment. One can also become sleepy.

1. none	2. low	3. possible	4. high (4.6)	5. very high
---------	--------	-------------	----------------------	--------------

2.4 Risks of criminal involvement

15) Level of risk caused by involvement of (organised) crime for production and trade

From some smart shop owners is known that they have connections with the synthetic drugs scene and in some Smartshops, which were visited by the police, controlled substances were found. There has been no (extensive) investigation into this.

1. none (1.9)	2. low	3. possible	4. high	5. very high
----------------------	--------	-------------	---------	--------------

16) Level of risk concerning involvement of (organised) crime with production and trade in raw materials

Refer to 15. In this case it is hard to tell the difference between the raw material and the actual product.

1. none (1.7)	2. low	3. possible	4. high	5. very high
----------------------	--------	-------------	---------	--------------

2.5 Enumeration of qualitative and quantitative scores

In the table below the results of the scores per category of risk are displayed. The numbers below show the average of the scores per criteria. In words is shown how the numeric scores are assessed textually. It is emphasized that the numeric scores are an aid for the risk assessment. For the determination of the final textual assessment are the (qualitative) arguments, which are used for the risk assessment, most important.

The directive has been used that a score from 1 to 2 means no risk, from 2 to 3, very low risk, from 3 to 4, a possible risk, from 4 to 5, a high risk and above the 5, a very high risk.

Category risk	Score	Valuation
I. Health of the individual	1.8	No risk
II. Public health/society	2.9	Very low risk
III. Disturbance of peace and order	2.5	Very low risk
IV. Criminal involvement	1.8	No risk
Total	9.0	

3 Conclusions and recommendations

3.1 Conclusions concerning the procedure

The risk assessment for magic mushrooms containing psilocin and psilocybin is the third following the established procedure and criteria of the CAM. There was reasonable much information available about mushrooms. The risk assessment meeting was brief (one meeting of 2.5 hours) and the greater part went smooth because the procedure and the criteria were known. During this meeting a tape recorder was used to ensure that all arguments where recorded.

3.2 Conclusions concerning mushrooms

Because there is no physical or psychological dependence, the acute toxic effects stays limited to possible panic and anxiety attacks and about chronic toxic effects at most the occurrence of flashbacks can be mentioned, there is no risk for the health of individuals when magic mushrooms are used.

The product is relative easy to acquire and there is little adequate information available on use of the product. The quality of the product is unreliable and there is quality awareness is absent with among most of those who sell it. On the other hand, the proportion of the use, the vulnerability of the user and the amount and the seriousness of incidents reports are low. The risk for the public health is therefore estimated as very low.

This product influences the response capacity (i.e. with driving) of the user in a negative way and but there is no occurrence of lowering of the violence threshold of the user. Because the use mostly takes place at home and in free nature there is no annoyance for citizens. The risk of disturbance of public peace is therefore estimated as very low.

There is no risk concerning criminal involvement. At most few individuals in the Smartshop circuit have got connections with the 'designer drugs' scene.

3.3 Position fixing on risk scale

The outcome of this and of former risk assessment(s) of other products are described in the following table. With the evaluation of the first risk assessments that where made, the work group has decided to remove the category 'remaining risks' (image of the Netherlands, consequences of measurements, applicable law on comparable products) because the risk assessment comity's duty

mainly concerns technical risk assessment and by judging over these aspects the comity would be moving to much on the territory of policy.

To be able to make the end scores comparable anyway, the last row describes what other the other products would have scored if the criteria ‘remaining risks’ would not have been counted. In this case a product can score a minimum of 5 and a maximum of 20 on the scale of risk level.

Product	Individual health	Public health	Public order	Criminality	Remaining risks	Total score	Score (compared)
MBDB	possible	possible	low	possible	possible	14.7	11.2
4-MTA	possible	possible	possible	possible	high	16.2	11.8
GHB	high	possible	low	low	low	13.2	11.0
Mushrooms	none	low	low	none			9.0

The recommendation after the risk assessment for MBDB was to monitor for some time and then make a new risk assessment. This recommendation was followed by the policy. The risk assessment of MTA led to the recommendation of taking measures against production and trade. The Minister has chosen to ban it by putting it on list 1 (Note of translator: Dutch list of controlled substances) of the Opium law, mainly because of the policy assessment to be uniform with other European countries. The recommendation for GHB was to monitor the situation and to make a new risk assessment as soon as there is a clear change in situation. The Minister has followed this recommendation.

Compared to MBDB, MTA and GHB, magic mushrooms score lower on the risk on the individual health and the risk on public health, lower than MTA and equal to MBDB and GHB on the disturbance of peace / public order and lower than the three other products on the risk of criminality. Compared to the other three products magic mushrooms score remarkable low on the scale of risk level.

3.4 Consequences of measures

The risk assessment comity has briefly discussed the consequences of possible measures. It is aware of the situation that the judicial status of mushrooms is still to be judged by the court of law. The risk assessment commission points out that magic mushrooms cause few problems nationally, as well in the area of public health, disturbance of peace / public order and criminality. The product is rarely known in other Countries of the European Union (except for certain areas of Germany where sometimes mushrooms from The Netherlands are found).

Therefore it would be good to handle a low profile regarding mushrooms and to prevent criminalization.

In the discussion was also brought up that in case of banning mushrooms, the Smartshops would lose half of their profit. This might result in them searching for other possible more risky products to even it up. Also the consumer could, when psilocybin mushrooms are no longer available through the Smartshops, decide to pick mushrooms in free nature (high risk of misidentification with toxic species) or consumers may switch to other products – possibly with higher risk-.

Most of the risks that the comity signalizes concern the inconsistent composition and quality of the products. Also the low quality of information and that it's easy to acquire play a part.

3.5 Recommendation

Looking at the things written above, the recommendation is to create quality standards to the product magic mushrooms (e.g. standardization, purity, labelling) and to the trade in mushrooms (i.e. information supply) and among others thereby promoting the limitation of the availability of mushrooms. The outcome of the risk assessment gives no need a ban by law on magic mushrooms.

Further procedure

The CAM offers the risk assessment report with the conclusions and the recommendation to the Minister of VWS (Note of the translator: Ministry of Public health). The board of policy will advice the Minister about the measures, which should be made in regard to the report of the CAM. A summary of measurements, which can be considered, are described in appendix 3.

Information rapport Psilocybe mushrooms

Common information

Mushrooms of the species *Psilocybe* ssp. and a number of other species (*Conocybe*, *Panaeolus*, *Inocybe* etc) contain psilocybin and psilocin (both are psycho-active alkaloids) as most important active substances. Several psilocybin mushrooms occur in Europe. The human body metabolises psilocybin into psilocin. These substances affect the serotonin receptors and cause an increase of serotonin in the brains and a temporary decrease of the concentration of noradrenalin, dopamine and histamine.

Usual dose: 1 gram of dried = 10 gram of fresh mushrooms; this can cause illusions and hallucinations. LSD, mescaline and psilocybin probably work by means of the same pharmacological principles.

1. Health of the individual

1 / 2. Amount of risk concerning the physical and mental dependence

Physical dependence does not occur with the use of psilocybin.

Mental dependence is very rare, yet possible.

With the effect of *Psilocybe* mushrooms tolerance occurs fast, meaning that a higher dosage is required to get the same effect. This tolerance decreases when psilocybin is not used for a considerable period of time. User data Information on users gives reason to estimate to assume that the tolerance discourages frequent use and therefore they talk about a period of at least 3 weeks before mushrooms can be used again to get the desired effects.

It has not been excluded that pleasant experiences will lead the user to try to experience these effects again. However, the fast occurring tolerance stands in the way of frequent usage.

3. Acute toxicity

The psychoactive dosage of psilocybin is about 6 to 12 mg. The lethal dosage for humans is estimated to be about the same, as ones own body weight in fresh mushrooms.

Psilocybin is therefore barely toxic (there is a case described with a good ending after eating up to 300 mushrooms). For most herbal products goes that acute intoxications are rare. The number of described cases concerning intoxication by herbal products is relative small. This makes it impossible to draw casuistic based conclusions. When mushrooms and herbal products rise in popularity, there will occur more cases of intoxication, reported despite the relative low level of toxicity. Danger of misidentification with species of higher toxicity is prominently present. Mainly the switching of the Psilocybe for the Cortinarius spp. (which causes kidney insurrection) is notorious (known from several cases).

As yet there are no messages of serious incidents in the Netherlands after the use of mushrooms. Mushrooms can be polluted with LSD, PCP or other substances.

The most conspicuous physical appearances are large eye pupils, balance impairment, paresthesia ("crawling ants" all over the body, relaxing muscles, fast heartbeat, a dry mouth and nausea. Other effects can be: sleepiness, abdomen pain, vomiting, pseudo-hallucinations, involuntary movements, excitement, fever, cold feeling, accommodation impairment, watery eyes, slowed down heartbeat and breathing frequency and decreased blood pressure.

Mental phenomena: hallucinogenic connections can rake up long forgotten memories and leave a big impression on users. Adrenergic blockers (like neurolepticals, propranol) usually work as incomplete antagonists.

After an acute intoxication the users often complain about uninterested feelings, extreme fatigue and depressive thoughts. Recovery is complete.

4. Chronic toxicity

There has been research done, but until the present moment no proof has been found for chronic toxicity.

Not enough data is available about mutagenicity and teratogenicity to draw any conclusion. There is no irreversible organ damage by psilocybin reported.

Long-term effects can, based upon the cross tolerance with LSD, not be excluded. A user can for example, sometimes months later after a one-time use, experience flashbacks (re-experiencing parts of a trip experienced in the past). There are also very rare occasions of remaining psychiatric symptoms (panic attacks) described.

The chance of the occurrence of long-term effects is greater however, for persons with an underlying psychiatric disorder.

Public health/society

5. Size and frequency of use/increase of use (inter)nationally

Mind-expanding mushrooms have been used for centuries in different countries in ritual and spiritual 'settings'. Since a few decades a trend has developed in the Western society to use these mushrooms recreational.

Since 1997 is the use of mushrooms becoming more popular in the Netherlands. They are increasingly used for recreational purpose by young people. The rise of smart-shops and the presence of smart-booths in discotheques and clubs might have a big influence on the degree and frequency of use of mushroom products. It is plausible that large-scale use of mushrooms will lead to an increasing number of medical incidents. The increasing use of woodchips on paths in for example parks could lead to a wider spread of natural occurring mushrooms (amongst others; *Psilocybe cyanescens*).

For most young people and young adults the use stays incidental, experimental and recreational. Many users quit after one or a couple of times. Research shows that compared to other drugs magic mushrooms have become popular in a relative short period of time. From students from the age of 12 and older, 4.3 % has used mushrooms at least one time. In absolute figures this means that there are between 39.000 and 43.000 students in the Netherlands, which have used a magic mushroom sometime. A short research study showed that 10 % of the young aged and young adults (age 15-24) have had experience with mushrooms. Half of those users have only used mushrooms once or twice in their live.

The impression exists that the accessibility increases. According the most recent estimation there are currently about a 100 sales points in our country.

6. Level of vulnerability of the user/age/experience/knowledge/circumstances

Intoxications are generally the result of switching / misidentification with a poisonous mushroom. Despite their experience even experts can make a fatal error. The intensity of the effect depends upon the dosage.

Especially teenagers at the age of 15-19 are experimenting (boys > girls).

People who are very unstable, have depressive thoughts or psychiatric impairments, would have an increased chance on psychological complications and medical incidents. There are no 'psychoses as a result of consuming psilocybin-containing mushrooms' described. Although the toxicity of psilocybin containing mushrooms is very low, there is a chance on behavioural change. Suicidal behaviour might occur during a 'bad trip'. There are no cases known of suicidal behaviour after the consumption of psilocybin containing mushrooms. It is assumed that the toxicity of psilocybin in children is more serious for then in adults.

With simultaneous use of psilocybin containing mushrooms and other drugs, like alcohol or marihuana, synergism (mixing of sense perception) can occur.

By far the majority of persons, who have experience with mushrooms, also had an experience with cannabis or XTC.

Dosages of about 6 to 12 mg psilocybin can lead to illusions and hallucinations. These can occur several times a minute and are usually visual by nature: the user sees for example colourful moving patterns. These images can be experienced as a pleasant, but also as frightening. Additionally, described are feelings of decrease of inhibition, periods of intense laughter and euphoria, but also restlessness, anxiety, panic and depressive thoughts. Between the hallucinations the user is well accessible for conversation. It is possible to verbally reach the user during the hallucinations. It is unpredictable weather the user will react in a positive or negative way. This depends on how sensitive the individual is.

7 Degree of accessibility of adequate user information*
presence and quality of the description flyer/misleading information/ appearance of the product

Mushroom (and herbal products) contain a scale of different pharmacological and toxicological active substances. There is little pharmacological and toxicological literature about the known active substances. Moreover this literature varies in content, quality and accessibility.

Because of this it is often difficult give a clear judgement about the harmfulness of these substances. Natural products are often mistakenly considered as beneficial and harmless. Moreover 'the harmlessness' of it is praised by both users as retailers.

The sales in smart-shops can be an advantage, when this decreases the risk of misidentification / to switching with poisonous species (especially the switching of *Psilocybe* with the strong nephrotoxic *Cortinarius* is notorious).

The impression exists that mushrooms are by far the most sold products of smart shops. Research clearly shows however that the information for users is not given properly by all Smartshops. Also the knowledge of the salesman in Smartshops turns out to be very varying. The information given in grow shops and head shops is very poor.

The information flyers usually do not contain the expiry date. The nature of the possible unwanted effects (side effects) is not described; thus leaving the inexperienced user in uncertainty. The amount of active substances (psilocybin /psilocin) present in the mushrooms is not mentioned. Because of the variety of active substances, the user cannot determine which dosage of active substances he takes when he consumes a certain amount of magic mushrooms.

8 Level of availability of the product

In Smartshops the species *Psilocybe*, *Panaeolus*, *Conocybe* spp., *Psilocybe semilanceata* and the *Psilocybe cubensis* are often sold. Next to dried and fresh mushrooms, small grow kits are for sale.

Magic Mushrooms is a widely sold in smart shops as an very effective product between a wide assortment of expensive, mainly new age placebo/"fake" products. Also they are offered in tourist shops where attributes as cannabis/coke pipes, T-shirts, badges etc. are sold. Magic Mushrooms are wide spread, because of the way they are sold. Mainly young foreigners are confronted with them. In Amsterdam there is a commercial trade-boom going on.

Most of the Amsterdam people have used mushrooms more often. Mushroom consumption amongst Amsterdam users seems to be over it's top and is, according to some decreasing again. Young foreign tourists, who flood the Amsterdam red-light district during the summertime and move from coffeeshop to coffeeshop, have also discovered the Smartshops. They form a group of new consumers, which have given the smart branch in the inner city a new impulse.

Mainly in the Amsterdam red-light district the number of smart shops has been largely increasing and the branch has been focussing increasingly on tourists.

9. Reliability of the quality of the product *

production method/purity/toxicity by-products/location of production

There are no product inspections. Of not one magic mushroom (and plant product) we know all the substances contained. Harmful components, added or not, can occur and affect the organs. The rising of more and more mixed and processed herbal products is contributing to the obscurity.

The biotransformation method has yet been found on the Internet. When tryptamin is added to the substrate the amount of psilocybin increases while that of psilocin decreases. Biotransformation is the only way to increase the level of alkaloids.

In the present situation a system of integral quality control, control and supervising in the chain from production to the supply to the consumer is lacking. Moreover it is not clear whether the user information, if available, is sufficiently based on facts. Because of the variety in contents of active substances, the user cannot determine which dose of active substances he takes when he consumes a certain amount of mushrooms.

The variety in active substance is smaller in cultivated mushrooms than in wild grown mushrooms. Psilocybin is stable at room temperature. It stays conserved in dried mushrooms. When it is dried in temperatures above the 50 degrees Celsius it falls apart in non-active substances.

10. Reliability of distribution and sale points, traders

There is no product inspection. These products are mainly sold in Smartshops. A few of the owners of smart shops have a "criminal" past.

The impression exists that there are relations on a small scale between sale points, trade, and producers on one hand and key figures in the organised (synthetic drugs) crime on the other hand. It pleases for the phenomenon 'smart shops', that this branch is nationally organized and is imposing itself 'ethical' and product-quality values, which is shown from the fact they asked champignon growers to grow these mushrooms for them.

11. Nature and number of reports of incidents
first aid hospitals/FAWE/NVIC

The number of described cases concerning intoxications by mushrooms is relatively small (table 4.4 of this report). There are only two fatal intoxications with *Psilocybe* spp. described. These intoxications are according to the author both not caused by intoxication by psilocybin. In 1982 there are in total 31 reports of clinic interventions because of intoxication with psilocin registered, throughout the whole United States of America.

Until now there are no reports in the Netherlands, about serious incidents after using mushrooms. According the National Poison Information Centre (NVIC) informative questions were asked occasionally about intoxication with mushrooms until a while ago (about 2 to 3 times a month). Recently the number of information requests is increasing. During the period of time from the 9th of June 1997 till the 13th of August the NVIC has given information 17 times. The information served users of psychedelic mushrooms; varying in age between 15 and 39 (average age 20), for whom medical attention was needed because of intense acute health effects.

The effects were mainly anxiety attacks, strong agitation and motorical restlessness, fear, hallucinations, confusion and visus impairment.

The number of alarm reports is increasing since a couple of years. It is remarkable that the use of mushrooms can lead to intense panic or conditions of disintegration. With reports at the Central Post of Ambulance Transport concerning mushrooms, it is usually necessary to transport the consumers to the First Aid of various city hospitals. This is a measurement for the seriousness of the panic. For as far as known this did not lead to deadly complications.

It is remarkable that the alarm situations concerning mushrooms, often concern foreigners. The number of incidents is rather small compared to cannabis (dutch/ethnic: 13, foreign: 24, of which transported to first aid/hospital: 23; in 1997). After transport 7 persons were taken in regarding XTC/mushrooms and were observed for 24 to 48 hours. All of them were discharged after recovery. No patient has died as a result of alarm situations after the consumption of these party drugs.

Disturbance of peace and safety

12. Frequency and seriousness of nuisance for citizens around use and sales

These products are mainly sold in Smartshops. Through the CRI(Dutch Central Police Intelligence Agency), with the help of available information from the police regions, a "quick scan" has been

done. The work group has send a list of questions about criminal activity and nuisance to those municipalities which are a member of the inner administrative Taskforce Safety and Addiction Care. Nuisance as a result of the sales or use of this product has not been reported. Magic mushrooms are still not seen as a party drug. Most of the users prefer a magic mushroom experience outside in nature or at home. Hallucinogens are considered not fit to be taken in discotheques by most of the 'party people'. The dosage that is recommended by the smart shops is only used sporadic.

13. Does the substance lead to a decrease of violence inhibition in the user?

A 'bad trip' can lead to feelings of anxiety and panic.

14. Does the substance influence the ability to react (ability to drive, operating equipment)

The effects start after about 30 minutes and continue for usually less than 3 to 4 hours (6-12 mg).

Sometimes the effects can last longer (up to 12 hours), depending on the dose.

Different behaviour patterns usually occur under influence of hallucinogens. This can lead to dangerous situations, for example during driving and operating equipment.

Psilocybin and psilocin affect the neurotransmitter serotonin. The effect is comparable to LSD.

Especially the hallucinations of space- and time- travel are very vivid. The duration of the effects is shorter than that of LSD; between 2 and 4 hours. Because of the effects on perception it is obvious that doing psycho-motoric tasks in general and especially taking part in traffic is very risky.

Someone who sees a crash barrier as a crawling snake cannot be marked as safe person in traffic.

Psychologically, (strong) changes in perception of space and time can occur, and also mood swings. Higher dosages cause sense impairments and generally visual hallucinations.

Acoustic hallucinations occur far less frequent.

Euphoric feeling and sleepiness can occur.

Criminal involvement

15. Is there involvement of (organized) crime with production and trade

Criminal involvement in production of and trade in eco-drugs and smart products is noticed to limited degree, but there is no impression, that this is at present(1997) has reached a worrisome scope.

In the case of the "Kerkdrielse" mushroom growers there was nothing that gave or gives reason to assume that there are criminal groups which want to (let others) grow mushrooms(commercially) on a large scale. These growers were 'amateurs' which on their own turned a bad running champignon mushroom farm, with stakes and risks for themselves, into a lucrative company.

At the Parquet-General there is not much known about criminal aspects of the use and trade of mushrooms.

Two district parquets (Amsterdam and Den Bosch) have been questioned about the criminal aspects of magic mushrooms. Both parquets give the same message: There is no hard evidence of criminal involvement. There is however no reason to believe that this is not the case. In the district Den Bosch has the 'gap' created by the absence of the growers from Kerkdriel has quickly been filled by others. There is a lot of money to be made with the growing and trade.

The parquet in Amsterdam reports that there are no concrete indications for criminal involvement. However there are so many questions concerning the supply of magic mushrooms that it has been decided to do an investigation about criminal involvement under supervision of the Wallen manager.

16. Is there involvement of (organised) crime with production and trade in raw materials

No information has been found. See 14 as well.

Discussion points: consequences of measures

Proportion of the risk of international-political problems concerning im- or export

In the Netherlands (1998) hallucinogenic mushrooms were cultivated on a large scale, which were dried and crushed. The crushed magic mushrooms were then packed in small bags and sewed for closure. Afterwards transport to Germany (Keulen) followed, where it was sold under the excuse of "Duftkissen" by means of a distribution chain.

legislation applicable on comparable products

Every product that is available in smart shops is brought under the general determinations of the Law of Goods (Note translator: law on food & supplements).

Psilocybin and psilocin are the active substances in magic mushrooms and are named on List 1 of the Opium Law (Law on controlled substances).

The Supreme Court has ruled that fresh Psilocybe mushrooms do not, but mushrooms treated in any way, do fall under the Opium Law. Growing mushrooms can according to the Supreme Court be a punishable act in preparation of an illegal act (11/18/1997, NJ 1998, 213). The court of law Den Bosch has judged in the basic procedure of this case, that growing mushrooms under certain circumstances are an act in preparation of an illegal act, according to article 10a of the Opium Law. The circumstances where in this case that the grower was actively treating the mushrooms (active drying process). The court's opinion is that the mushrooms became an illegal preparation as meant in the opium law.

This court of law has also judged that psilocin and psilocybin are no danger for the public health, but that a judge is not free to rule that psilocin and psilocybin are wrongly on list 1 of the Opium Law. This is up to the legislator.

The provisional result of the ruling of the Supreme Court and the judgement of the court of law is that Psilocybe mushrooms "treated in any way" are under the control of List 1 of the Opium Law. The definitive status of magic mushrooms is still to be decided by the courts.

Negative consequences for legal economic and industrial sectors in case of prohibition

The sales of magic mushrooms is a large part of the Smartshops turnover..

There are some champignon mushroom growers who switched to growing Psilocybe mushrooms.

1. Composition risk assessment commission

Min. Health VWS: direction GVM: plv chairman.	Sr. Drs. A. Cramer
Min. Health VWS: direction of medicine provision (GMV)	Sr. Drs. W.K. Scholten
Inspection on health Care (IGZ)	Sr. Dr. R.J.J.Hc. Lousberg
Inspections for Goods and Veterinary cases (IW&V)	Sr. Drs. B Kunstner*
Trimbos research institute /Focal point	Ms. Drs. M. van Laar
Trimbos research institute /DIMS	Ms. Dr I.P. Spruit
Ministry of Justice	Ms. Mr. N. van der Arend
Ministry of Justice/WODC	not present
Ministry of Defence (OM/USD)	Sr. Mr. J.J.T.M. Pieters
CRI/Unit Synthetic Drugs (USD)	Sr. A. Elissen
Economic Control Service	not present
Judicial Laboratory (GL)	Sr. Dr. H. Huizer
National Intoxication Information Centre (NVIC)	Ms. drs. I. de Vries
Leids Universityl Medical Centre: Lab. for Toxicology	Sr. Prof. Dr. F.A. de Wolff
GG&GD Amsterdam	Sr. Dr. R. ter Haar
University of Amsterdam: fac. Study of Law and Criminology	Sr. Drs. T. Nabben
CAM coordinator/secretary	Ms. Dr. C.A. Rurgers

2 Procedures for risk assessment

There are three procedures, which vary only in speed:

- A. A very fast procedure, (fast assessment) for situations, which are an acute public health risk (e.g. atropine). This procedure has to be finished within 24 hours.
- B. A reasonable fast procedure, (moderate assessment) for situations of which the public health risk is not acute, but is present within a short period of time. 12 days seems to be a reasonable period of time.
- C. A procedure upon request, where there is no strict limitation in time (preventive assessment). This procedure can take a couple of months.

*represented by Ms. W. Kleinjan

The steps are the same in the three procedures:

1. The report of a (suspected) new drug or the request for a risk assessment comes in at the coordination point through the network. Through Europol or the Focal Point (Trimbos) reports from other Member States of the European Union can come in.
2. The coordination point to present asks the daily management to decide if a procedure is to be started. If so, then the coordination point will collect information about the new drug through it's network. The information rapport will be made based upon the collected information. The information rapport will be send to all the members of the commission or to a selection of them. (4 days)
3. Based upon this information the members will individually to make an risk assessment through the score form, with the established criteria. If the procedure allows it, the outcome is discussed together. (2 days)
4. The risk assessment forms will be collected and it's contents evaluated by the coordination point. Based upon this the coordination point will make a risk assessment-rapport with conclusions and recommendations. (4 days)
5. If possible the rapport will be presented to the members for commentary and to the daily management for approval (2 days).
6. The risk assessment rapport will be presented to the minister of Public Health by the Head inspector FMT of the Inspection on health care.
7. The procedure will be evaluated (facultative).

3 Risk assessment criteria

I. Individual health

1. Level of risk concerning physical dependence
2. Level of risk concerning mental dependence
3. Level of risk concerning acute toxicity (besides the effect intended by the user)
frequency and seriousness of complaints/ use of other substances/ dosages and variations of those/ common way of intake/ frequency of use/effects which the user cannot perceive, do but influence behaviour.
4. Level of risk concerning chronic toxicity (see 3)

II. Public Health

5. Level of risk concerning the proportion and frequency of (the increase of) the use (inter) nationally.
6. Level of risk concerning the vulnerability of the user

age/experience/knowledge/circumstances

7. Level of risk caused by the absence of adequate usage information

presence and quality of flyer/deceiving information/appearance of the product

8. Level of risk concerning the availability of the product

9. Level of risk caused by unreliable quality of the product

production method/ purity/ toxic by-products/ location of production

10. Level of risk caused by the unreliability of the way of distribution, sales points and traders

11. Level of risk measured by the nature and proportion of reports of incidents

first aid hospitals/EHBO/ National Intoxication Information Centre

III. Disturbance of peace and safety

12. Level of risk concerning nuisance (frequency and seriousness) for citizens around sale and use

13. Level of risk in relation to the decrease of violence inhibition in the user

14. Level of risk caused by the influence on the ability to react (driving, operating equipment) of the user

IV. Criminal involvement

15. Level of risk concerning possible involvement of (organised) crime in the production and trade

16. Level of risk concerning possible involvement of (organised) crime in the production and trade in raw materials

4. Risk assessment table (Level of risk concerning...)

Name of person:

Name substance:

I. INDIVIDUAL HEALTH	1	2	3	4	5	Score
(1) Physical dependence	no	Very low	possible	high	very high	
(2) Mental dependence	no	Very low	possible	high	very high	
(3) Acute intoxication	no	Very low	possible	high	very high	
(4) Chronic intoxication	no	Very low	possible	high	very high	
II. PUBLIC HEALTH						
(5) Proportion & frequency of use	no	Very low	possible	high	very high	
(6) Vulnerability of user	no	Very low	possible	high	very high	
(7) Unavailable user information	no	Very low	possible	high	very high	
(8) Availability of product	no	Very low	possible	high	very high	
(9) Unreliable quality product	no	Very low	possible	high	very high	
(10) Unreliable way of distribution	no	Very low	possible	high	very high	
(11) Nature and number incidents	no	Very low	possible	high	very high	
III. DISTURBANCE OF PEACE						
(12) Frequency and seriousness	no	Very low	possible	high	very high	
(13) Act of violence by user	no	Very low	possible	high	very high	
(14) Influence ability to react	no	Very low	possible	high	very high	
IV. CRIMINAL INVOLVEMENT						
(15) Criminal involvement final product	no	Very low	possible	high	very high	
(16) Criminal involvement raw materials	no	Very low	possible	high	very high	

Possible measures for risk-control

There are roughly five possible categories:

1. no action
2. monitoring,
3. prevention,
4. targeted measures directed at production and trade
5. prohibition (nationally/ internationally)

In the area of monitoring and prevention there are various existing instruments, which can be used (e.g. DIMS, information programs).

Measures and prohibitions are required to be based upon the law. There are four laws suited: the Opium Law, the Law for Medicine Provision, the Law of Goods and the Code of Penal.

Law of Goods

The Law of Goods decides that trade of goods with a medical orientated advertisement is prohibited (art. 19). There is also decided that action may be taken when the public health is in danger by a disputable product (art. 18). At last there is the possibility to make standardization through a Common Measure of Management to decide what amount of an active substance is allowed in a product (art. 4).

Law of Medicine Provision

According to the European Court of Justice the LMP is applicable to all the active pharmaceutical substances (see arrest of the 16th of April concerning the term medicine). However, the final judgement about every specific substance is always up to the national judge. The remaining criteria of the LMP, pharmaceutical form, and advertisement as a medicine, making medical claims play a part in this. What can also play a part is weather the substance is (has been) on the market as a registered medicine in the Netherlands. Most of the party drugs are used to influence the processes of the brain but are sold in pharmaceutical shape (tablets, powder, capsules) but are not sold with a medical claim.

The LMP decides that for preparing and trading of medicines a permit is needed and that a medicine can only be traded if a registration has been required from the College for Judgement of

Medicine. The LMP is mainly focussed on the legal production and trade and on registration of medicines. 'Legal' registration of the LMP for party drugs is impossible, because of the absence of a no medical indication.

In May 1999 a special work group (IGZ/OM, researching offences LMP' 19th of May 1999) has concluded that the LMP in its present form is not really suitable to deal with the abuse of medicine (as party drugs or doping) adequately because of the low penalization. A proposition has been done to solve this problem (making the penalization higher in case of offence of some articles of law by bringing them under the Law of Economic Offences). The Counsel of Ministers will discuss the bill of law in spring of the year 2000.

Opium Law

The classification under the Opium Law means a total prohibition on import/export, production, trade and possession. In the Opium Law a difference has been made between list 1 substances (unacceptable risk for public health) and list 2 substances (acceptable risk) concerning penalization. No difference has been made between the different substances (in risk level) on list 1.

A limitation is that list 1 can only be rearranged nationally (list 2 can only be rearranged if the Psychotropic Substances Pact in UN-relation is rearranged). So new substances can only be put on list 1 (with the highest penalization).

With the Opium Law (adequate) action can be taken against all operations with party drugs. There is a possibility for persons or institutions to apply for leave of the Opium Law at the Minister of Public Health. However these permissions are only given to certain ends (production & trade of medicine, research and instructive ends).

Code of Penal

With the Code of Penal art. 174 actions can be taken against deliberate selling (the dealer probably knows it is harmful) etc. of harmful goods where the harmful character is deliberately concealed. However the provability forms a remaining problem here.

Chronological description risk assessment procedure magic mushrooms

On **September the 27th 1999** the policy Executive Board of the Ministry of Public Health submitted a request to start a risk assessment procedure concerning magic mushrooms.

On **October the 1st 1999** the daily management of the Coordination point Assessment and Monitoring new drugs (CAM) decided a risk assessment procedure for magic mushrooms would be started.

On **October the 1st 1999** the CAM asked for information from the soundboard group members and on **November the 24th 1999** the information rapport (the collected, analysed and summarized information) has been send to all the members of the risk assessment commission with the request to make an individual risk assessment.

On **December the 9th 1999** the risk assessment commission gathered to make a joint risk assessment.

On January the 10th 2000 a concept of the rapport has been send to the risk assessment commission for commentary.

On the 8th of February the CAM has presented the final rapport to the daily management for approval and on the 23rd of February it is approved.

In total the procedure has taken **5 months**.

1 Terminology

Crime: when the law is broken with full awareness and this is the usual manner of making an earning.

Euphoria: heightened feeling of well-being and unfounded optimism

Empathic: the ability to imagine the feelings of others

Habituation: obtained tolerance

Organized crime: in groups, in networks or other connections. There has to be a matter of the use of violence to defend positions etc.

Risk assessment: A (scientific) evaluation of probability of occurrence of known or potential negative effects (as well quantitative as qualitative) for (public) health, public order and society.

Risk: An estimation of the probability with which and the level with which a negative result for the (public) health, public order and society can occur.

Hallucination: sense perception without the sense input causing it

Illusion: Incorrect interpretation of sense input

Mutagenic: Mutations (in DNA) beneficial or bringing about

Nuisance: An unwanted social situation, caused by a.o. theft, aggression and (street) violence, derogatory behaviour and disturbance of public order

Teratogenetic: promoting or bringing about deformities (in the unborn fruit)

Tolerance: Low sensitivity for the pharmaceutical action of a substance

Addiction: Dependence, which manifests by signs of withdrawal. Physical: for example shaking, shivering, redness of face and neck, impairments of sense capacity. Mentally: restlessness, agitation, anxiety, depression, and hallucinations.

2 Abbreviations

CAM	Coordination point and Monitoring new drugs
2-CB	4-broom-2,5 dimethoxyphenethylamin
CNS	Central Nerve System
DIMS	Drugs Information and Monitoring System
EMCDDA	European Monitoring Center for Drugs and Addiction
GABA	Gamma Amino Butric Acid (neurotransmitter)
GBL	Gamma-butyrolacton
GHB	Gamma-Hydroxy-Butyrate
LSD	Lysergic Acid Diethyl-amide
MBDB	1-(1,3-benzodioxol-5-yl)-2-(methylamino)butane
MDMA	3,4-methylenedioxy-N-methylamphetamine (= XTC)
MTA	4-methylthioamphetamine
VLOS	Branch organisation of Smartshops
UN	United Nations
LMP	Law on Medicine Provision

On the legal status of Psilocybe mushrooms – By Ananda Schouten

UN & National laws.

The mandate of the INCB is described on their website as follows: 'It is the boards responsibility to promote government compliance with the provisions of the drug control treaties and to assist them in this effort.'

This implies that when there is doubt about how a law, which has come to existence trough the UN drug treaties, should be to interpreted, a country should seek advise at the INCB.

The INCB of the UN is very clear in their statement that Psilocybe mushrooms are not controlled by the UN convention on psychotropic substances. If Psilocybe mushrooms are not controlled by this convention, then may a Nation apply the laws flowing from this convention, more strict than the convention provides?

Article 23 of the UN states that "A party may adopt more strict or severe measures or control than those provided by this Convention if, in its opinion, such measures are desirable or necessary for the protection or the public health and welfare."

The CAM rapport and the study on psilocybin clearly show that such measures are not desirable nor necessary for the protection of the public health and welfare.

Several nations which wanted to ban magic mushrooms, like Germany and Swiss needed to create new laws, because they concluded that the existing laws, that came to be as a result of the UN convention on psychotropic substances of 1971, do not apply to Psilocybe mushrooms.

Since the UK has signed the UN convention, it's citizens including those charged for possession of mushrooms, may expect that if the UN states Psilocybe mushrooms are not controlled by the convention, the crown will respect this treaty.

Why plants, containing illegal substances are not controlled.

In the process of formulating the UN convention of 1971 this topic was well discussed. Controlling such plants (or mushrooms in this case) would bring about a lot of problems. Wild organic material, which contains controlled substances can be found anywhere. Magic mushrooms or some out of thousands of such plants may grow and sundry in your lawn.

Many other substances that are freely available everywhere are listed as controlled in this convention: For instance: MMDA, the active ingredient or nutmeg. Red poppy somniverum contains morphine, opium & heroin. Phalaris contains DMT. Potato's contain Diazepam and lormetazepam.

These substances are prepared in ways that makes them preparations under the UN convention if dried Psilocybe mushrooms are considered preparations. Nutmeg are even powdered. If magic mushrooms are controlled, then these products are controlled as well.

Intolerability and unrealizability of a magic mushroom ban on basis of the existing laws.

The Netherlands is an excellent example of the problems that arise from a ban on treated magic mushrooms. Treated or prepared mushrooms are illegal in the Netherlands. Passively dried mushrooms are legal, because they have not undergone any preparation. There is no way to see how a mushroom became dry. Then how dry is dry? What percentage of water needs to be evaporated, before a mushroom ceases to be a mushroom and begins to become a preparation? If a mushroom is packaged, does it then cease to be a mushroom? Is it allowed to put mushrooms on a plate? What about the fact that magic mushrooms are cooled and packed with the intent to keep them fresh and thus legal? for The vagueness goes beyond comprehension and beyond extent. It is to big to describe here.

The police force, which is already overloaded with work (which does prevent citizens from getting hurt) is confronted with all this vagueness. The Police finds this vagueness impossible enforce. Should the police inspect if there is enough water in magic mushrooms or how they are packed? This seems absurd, but is the direct result of a ban trough existing laws. It would leave a greater quantity of loophole than law. The police in

the Netherlands finds itself unable to enforce these laws. It would also result in a great consumption of time of the courts, as vague laws, result in many unnecessary cases. If banning is something a nation wants to do, then the lawmakers should do so by making a law, which is fit to the task.

About prohibition of Psilocybe Mushrooms

When magic mushrooms are sold through legally operating, tax paying retailers, they sell them in a clearly recognisable form. This means that this leaves no room for cleverly disguised 'magic' chocolate bars, 'magic tea' and many other unrecognisable forms. Products like that are easily mistaken for candy by children. Retailers that sell magic mushrooms want to prevent such events and provide regulation by not selling to minors and provide information for safe use.

Poisonous mushrooms of the Amanita species are often confused by media and authorities with Psilocybe mushrooms. This confusion should not be underestimated. Amanita's are also referred to as Magic mushrooms by the general public. In contrary to Psilocybe, Amanita's can be deadly and contain a whole different type of active substances.

Both the CAM risk assessment and the study on psilocybin clearly show that there is no need to protect public health with a ban on magic mushrooms.