



NEWS RELEASE from the EU drugs agency in Lisbon

26 JUNE: INTERNATIONAL DAY AGAINST DRUGS

New EMCDDA study asks 'Is cannabis getting stronger?'

(25.6.2004, LISBON) 'Is cannabis getting stronger?' is the key question explored in the first-ever European review of cannabis potency released today, **International day against drug abuse and illicit drug trafficking**, by the **EU drugs agency (EMCDDA)**.

Today's study was launched in the light of recent concerns that cannabis may now be much stronger than in the past, and that increasing potency could be resulting in more health problems for users. Such concerns are worrying as cannabis is the most commonly used illicit drug in the **EU**, with many countries reporting lifetime prevalence rates in excess of 20%. And the number of those both experimenting with, and using, the drug intensively has risen over the last decade.

Commenting on the study, **EMCDDA Director Georges Estievenart** says: 'There has been much speculation on the strength of cannabis available today, but little in the way of hard evidence. This study contributes to research by offering a broad overview of what is currently known about trends in cannabis potency in Europe'.

Analysing cannabis potency

The potency of cannabis is defined as the amount of the primary active ingredient Δ^9 -tetrahydrocannabinol (THC) present in the drug. Analysing this potency is complicated by a number of factors.

Firstly, cannabis is available in different forms – most commonly as cannabis resin (hashish) and herbal cannabis (marijuana) but also, more rarely, as an oil. Potency varies between these different products, but can also vary between different samples of the same product or even within the same sample. Herbal cannabis presents particular challenges for testing, as THC levels can vary considerably in different parts of the plant and the sample tested may not be representative of the whole seizure.

Secondly, there is substantial natural variation in THC levels in cannabis. Such variation can be attributed to different methods of cultivation or the geographical source. But variations can also occur within plants cultivated in similar settings.

Thirdly, the age of the product is important. The rate of THC decomposition in cannabis at room temperature is estimated at 17% per annum and, in some cases, THC almost completely disappears after two years of storage. Therefore, how long the drug has been in transit and storage (both before and after the drug is seized) may have an impact on potency estimates.

Finally, analytical problems arise in measuring THC: different laboratories may use diverse testing methods or measure THC against different reference standards; and countries may adopt different sampling strategies, or only test a small number of samples. Collectively these problems can produce unreliable or imprecise results, which complicate the assessment of trends over time and diminish the reliability of historical data. Standard testing and sampling procedures thus need to be developed to provide a clear picture of potency and allow trends to be monitored over time.

Natural variation in the THC content of imported cannabis at any one time and place far exceeds any long-term changes in potency that may have occurred in Europe in recent years. This means that regular cannabis users will, in all probability, have been exposed to both high potency and low potency cannabis – but this is not a new phenomenon as some forms of high potency cannabis have always been available.

No evidence of a significant increase in overall potency of cannabis in Europe

Today's study reveals that when the overall potency of cannabis products available on the European market is calculated, there is no evidence of a significant increase in potency. This is because, in most EU countries, imported cannabis (herbal and resin) dominates the market and this has remained stable over many years.

Information on potency and the relative consumption of different products in a particular country can be combined to give the overall trend in THC levels that are experienced by cannabis consumers. Termed the 'effective potency', it is derived by weighting the potency of each product by its fractional share of the market and then summing the individual values to give an estimate for the average potency of cannabis available at any one time.

Today's report shows that effective potency of cannabis in nearly all EU countries has remained quite stable for many years, at around 6–8% THC. The only exception has been the **Netherlands** where, by 2001–2002, it had reached 16%, largely due to the increasing availability of intensively produced home-grown cannabis.

Intensively-grown cannabis more potent

The study shows that overall increases in cannabis potency occurring in some countries are almost entirely due to the increased relative consumption of home-produced herbal cannabis, cultivated using intensive hydroponic techniques. Indoor cultivation of herbal cannabis now occurs in most, if not all, European countries but imported products are still more commonly used.

Herbal cannabis grown in this way in the **EU** is overall consistently of high potency, often two or three times greater than herbal cannabis imported from countries of **North Africa, the Caribbean, and the Far East**, where it is grown naturally outdoors and where storage and transit time degrade the THC. But that said, there is considerable overlap in terms of the potency of both imported and intensively grown cannabis, with imported cannabis sometimes found among the more potent samples tested.

Although in many **EU** countries some intensive home production of cannabis now occurs, the market share of this type of the drug is thought to be small, but there are concerns that it might be growing, highlighting a need for better monitoring of the market. One exception is the **Netherlands**, where, due to relatively high domestic levels of intensively produced cannabis (*nederwiet*), it is estimated that over half the cannabis market now consists of locally-grown products, although only a proportion of these is likely to be exceptionally potent.

The higher potency of home-grown herbal cannabis over imported products may be due to several factors: genetic (e.g. seed variety); environmental (special lighting, feed supplements, artificial altering of day-length and other conditions); and freshness (production closer to consumer and no storage degradation of THC).

Variations in Europe's cannabis market

National statistics from law-enforcement agencies show the **EU** to be the world's main consumer of cannabis resin. Resin seizures are more common in **Western Europe** than **Eastern Europe**. Between 1996 and 2001, resin accounted for 79% of the total weight of cannabis seized in **Western Europe**, while, in **Eastern Europe**, this proportion was only 13% (UNODC, 2003). This is accounted for by the geographical position of **Morocco**, the world's largest producer of resin.

In terms of cannabis consumption estimates, European countries fall into two distinct groups. In some countries, herbal cannabis holds the largest market share – e.g. **Belgium** (80%), the **Czech Republic** (90%), **Estonia** (85%), and **Austria** (70%), while in the **Netherlands**, the estimated market share of home produced herbal cannabis is 67%, imported herbal cannabis 3% and imported resin 29%. Elsewhere cannabis resin dominates the market – e.g. **Germany** (60%), **Ireland** (90%), **Portugal** (90%) and the **United Kingdom** (70%). The predominant use of herbal cannabis in **Eastern Europe** is consistent with the above pattern of drug seizures and may reflect the greater separation of these markets from the production sites of **North Africa**.

In the **United Kingdom**, herbal material, around half of which is imported, is estimated to comprise only one-third of all cannabis consumed. A survey of reefer cigarettes in **Ireland** also pointed to the dominance of resin – over 90% of such cigarettes contained it. In both these countries, the content of reefer cigarettes over the past 20 years has been 'remarkably constant'. A British study suggests that the typical reefer cigarette in the **UK** contains around 200 mg of herbal cannabis or 150 mg of cannabis resin, equivalent to around 10 mg of THC. Similar findings were reported in a study from **Ireland** where the mean herbal cannabis content of cigarettes was 260 mg and the mean resin content was 102 mg.

There are also major differences in patterns of use between the **United States** and **Europe**. In **Europe**, both forms are usually smoked in a mixture with tobacco. In the **US**, herbal cannabis, either grown domestically or imported from **Canada** or **Mexico**, is commonly smoked, but cannabis resin is seen more rarely.

Does high-potency cannabis present additional health worries?

If intensively grown cannabis does take a larger market share in the future, what impact will this have on users' health? In answering this question the following issues need to be considered.

Most of the research in this area originates in the **US** and is of questionable relevance to **Europe** as consumption patterns differ (see above). One major unresolved question is whether individuals who smoke high-potency cannabis may simply use less of the drug to achieve the same effect. In this case, use of high-potency cannabis may not necessarily result in increased dose exposure (higher levels of THC in the blood) or elevated health risks.

Equally, or even more, important in influencing the total THC to which an individual is exposed over time are factors such as: the age of onset of use; the intensity of use; and the time period over which individuals use the drug. One influential **Australian** review concluded that cannabis users' lifetime dose levels may have increased but this was more due to the fact that they were using earlier, and for longer, rather than because of the availability of stronger cannabis products.

Nevertheless, it is plausible that some health problems, and acute problems in particular – such as panic attacks and minor psychological problems – might be more common among users consuming high-potency cannabis. Given the rising concern about a possible link between cannabis and serious long-term psychological health problems, a negative impact of the use of high-potency cannabis cannot be ruled out.

All things considered, there is a pressing need to monitor the availability of different types of cannabis on the European illicit drug market and to research the behaviour of cannabis users; levels of THC dose exposure; and the development of both acute and chronic health problems.

The **EMCDDA** says there is no evidence of significant changes in THC levels of cannabis consumed in Europe as a whole. This is because imported cannabis products dominate the market and – although potency varies considerably in individual samples of imported products – potency levels have, on average, remained stable. A growing concern however is the availability of intensively cultivated domestic produced cannabis, which is more consistently of high potency. Where changes are reported in potency of cannabis available in Europe they relate almost exclusively to the availability of this kind of cannabis product.

Estievenart concludes: 'The message we draw from this study is that we should neither be over-alarmist nor too complacent about the potency of cannabis available today. Cannabis produced within Europe using new methods is consistently of higher potency, although this product remains relatively rare in most countries. But this could change, and we must therefore implement measures to monitor the situation carefully and extend our understanding of what impact high-potency cannabis is likely to have on the health of cannabis users'.

Editors notes

An overview of cannabis potency in Europe, EMCDDA Insights No 6, 2004. Prepared by Dr Leslie A. King under the direction of Paul Griffiths and Chloé Carpentier of the EMCDDA.

The study is downloadable from: <http://www.emcdda.eu.int>

Information on the potency of cannabis products in European countries was obtained from: a review of the scientific and technical literature on this subject; reports from EU Member States (Standard Table 14 submissions as part of their participation in the EMCDDA–Reitox European monitoring system on drugs); and information obtained from a specially designed questionnaire sent to nominated experts in forensic science, toxicology and drug testing. Experts from 13 EU countries assisted with the study.