

New study: Up to 90 percent of US paper money contains traces of cocaine

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Traces of cocaine exist in up to 90 percent of banknotes in many large US cities, a new study reports. Credit: The American Chemical Society

You probably have cocaine in your wallet, purse, or pocket. Sound unlikely or outrageous? Think again! In what researchers describe as the largest, most comprehensive analysis to date of cocaine contamination in banknotes, scientists are reporting that cocaine is present in up to 90 percent of paper money in the United States, particularly in large cities such as Baltimore, Boston, and Detroit. The scientists found traces of cocaine in 95 percent of the banknotes analyzed from Washington, D.C., alone.

Presented here today at the 238th National Meeting of the American Chemical Society, the new study suggests that [cocaine](#) abuse is still widespread and may be on the rise in some areas. It could help raise

public awareness about cocaine use and lead to greater emphasis on curbing its abuse, the researchers say.

The scientists tested banknotes from more than 30 cities in five countries, including the U.S., Canada, Brazil, China, and Japan, and found "alarming" evidence of cocaine use in many areas. The U.S. and Canada had the highest levels, with an average contamination rate of between 85 and 90 percent, while China and Japan had the lowest, between 12 and 20 percent contamination. The study is the first report about cocaine contamination in Chinese and Japanese currencies, they say.

"To my surprise, we're finding more and more cocaine in banknotes," said study leader Yuegang Zuo, Ph.D., of the University of Massachusetts in Dartmouth.

Zuo says that the high percentage of contaminated U.S. currency observed in the current study represents nearly a 20 percent jump in comparison to a similar study he conducted two years ago. That earlier study indicated that 67 percent of bills in the U.S. contained traces of cocaine.

"I'm not sure why we've seen this apparent increase, but it could be related to the economic downturn, with stressed people turning to cocaine," Zuo says. Such studies are useful, he noted, because the data can help law enforcement agencies and forensic specialists identify patterns of drug use in a community.

Scientists have known for years that paper money can become contaminated with cocaine during drug deals and directly through drug use such as snorting cocaine through rolled bills. Contamination can spread to banknotes not involved in the illicit drug culture because bills are processed in banks' currency-counting machines.

Previous studies on cocaine in banknotes, however, had several drawbacks. They often were based on sampling only a small number of banknotes, for instance. Some tests destroyed the currency.

In the new study, Zuo and colleagues describe use of a modified form of a standard laboratory instrument termed a gas chromatograph-mass spectrometer. It allows a faster, simpler and more accurate measurement of cocaine contamination than other methods, without destroying the currency. The researchers used the method to analyze banknotes of several different denominations from the five countries surveyed.

The U.S. had the highest levels. The scientists analyzed a total of 234 banknotes from the U.S. and found that up to 90 percent of the banknotes contain traces of cocaine. Amounts ranged from .006 micrograms (several thousands of times smaller than a single grain of sand) to over 1,240 micrograms of cocaine per banknote (about 50 grains of sand). For comparison: A grain of sand weighs approximately 23 micrograms; there are one million micrograms in a gram and 28 grams in an ounce.

The scientists collected U.S. banknotes from 17 U.S. cities and found that larger cities like Baltimore, Boston, and Detroit had among the highest average cocaine levels. Washington, D.C., ranked above the average, with 95 percent of the banknotes sampled contaminated with the drug. The lowest average cocaine levels in U.S. currency appeared in bills collected from Salt Lake City.

The researchers studied 27 banknotes from Canada and found that 85 percent were contaminated with cocaine, with amounts ranging from 2.4 micrograms to over 2,530 micrograms of coke per banknote. The researchers analyzed 10 banknotes from Brazil and found that 80 percent were contaminated with cocaine, still high but lower than the U.S. and Canada.

China and Japan had the lowest levels. The researchers analyzed 112 banknotes from China and found that about 20 percent were contaminated with cocaine. Of the 16 banknotes analyzed from Japan, only about 12 percent were contaminated with cocaine, the researchers say.

Despite the high percentage of cocaine-contaminated banknotes, Zuo points out that the amount of cocaine found on most notes was so small that consumers should not have any health or legal concerns about handling paper money.

"For the most part, you can't get high by sniffing a regular banknote, unless it was used directly in drug uptake or during a drug exchange," Zuo said. "It also won't affect your health and is unlikely interfere with blood and urine tests used for drug detection." This study was partly funded by the University of Massachusetts-Dartmouth.

Source: American Chemical Society ([news](#) : [web](#))

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