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*From the Baltimore Sun*

# Hallucinogen found to have diverse effects

## Terror, mystical experiences found in Hopkins research

By Chris Emery  
Sun Reporter

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The hallucinogen in the "magic mushrooms" of the 1960s can produce terror, paranoia and schizophrenia, but it can also spark a religious and mystical experience that leaves the user feeling kinder and happier, [Johns Hopkins University](#) scientists reported today.

In a federally funded study, Hopkins researchers gave 36 volunteers pills containing psilocybin, a hallucinogen occurring naturally in some species of wild mushrooms. The volunteers then slipped on eye covers, put on headphones playing classical music and followed instructions to "look inward."

Afterward, many reported an altered state of mind similar to experiences recorded over the centuries by religious faithful whose numbers have included Buddhist monks, Sufi whirling dervishes and Christian saints.

The experiment was one of the first of its kind since research on hallucinogens ground to a halt in a backlash against the "turn on, tune in, drop out" drug culture of the late 1960s.

Scientists say the work could signal a loosening of long-standing restrictions on research into the effects of psilocybin and similar compounds such as MDMA, the psychedelic drug often referred to as Ecstasy.

"It opens up this whole adventure in neuroscience to chart brain functions during mystical experiences," said Roland R. Griffiths, a professor of behavioral biology and neurology who led the study.

The government wants to learn more about the neurological underpinnings of addiction, particularly among vulnerable adolescents, said David Shurtleff, director of basic neuroscience and behavioral research at the National Institute on Drug Abuse, which funded the study.

"There has been a sea change in how we look at drug addiction and how it occurs in the brain," he said. "We can now study the brain in more detail."

Although Hopkins researchers said psilocybin might one day be used to treat drug addiction, depression and anxiety, Shurtleff cautioned that the government considers it a dangerous drug with no medical applications.

Among other reactions to the drug - some unpleasant - some study participants reported feelings of joy and peace, and a sense of transcending time and space.

They often described their experiences in paradoxical terms. But like their predecessors a generation earlier in experiments during the 1950s and 1960s, many called it one of the most sacred spiritual moments of their lives.

According to the Hopkins researchers, psychologists call it a primary religious or mystical experience.

"The world's great religions have come up with ways to improve the possibility of having a mystical experience - chanting, fasting, praying, meditating," Griffiths said. "Now we can occasion these experiences in a carefully controlled laboratory setting and study them empirically."

Despite the safe and supportive environment, the experience terrified nearly a third of the participants.

"In extreme cases, that [feeling] can be tainted by paranoia, that they are going crazy, that they are not going to get back," Griffiths said.

The caution was echoed by NIDA's Shurtleff. "These are dangerous compounds," he said. "Although they showed some interesting effects, there are many harmful effects of these drugs."

The researchers chose subjects who had never taken a hallucinogen and who described themselves as religious or spiritual. The drug "was less likely to disorient them, and they had a community to which they could relate the experience," Griffiths said.

Scientists screened out potential volunteers with mental illness beforehand and, during the eight-hour sessions, provided monitors to talk their subjects through difficult moments.

Overall, nearly two-thirds reported mystical experiences, and many stressed a sense of sacredness and unity with all things.

Griffiths noted that such a surrender to a "higher power" is an integral part of many step-by-step drug treatment programs.

"It's interesting to ask if someone like that could benefit from these compounds in a carefully controlled clinical setting in concert with a 12-step program," he said.

Two months after the experiment, many participants said it had left them feeling kinder and happier than before, persistent changes that scientists corroborated through interviews with families, friends and co-workers.

The researchers based their analysis on the work of Princeton philosopher Walter T. Stace, who described the common characteristics of altered states reported by religious people worldwide.

"The basic premise is that at the root of religion, there is a unifying vision, a mystical-type

experience," said Robert Jesse, a co-author of the Hopkins study published today in the journal *Psychopharmacology*.

Under federal guidelines, psilocybin is in the most restricted class of drugs along with LSD, marijuana and heroin. They are illegal to possess or distribute, and doctors are forbidden to prescribe them, but approved scientific research is legal.

At least two other psilocybin studies are under way in the United States, one exploring its potential for easing the anxiety of terminal cancer patients and another exploring its use in treating obsessive compulsive disorder.

Although Griffiths senses a new willingness by universities and the government to support research on hallucinogens, he still fears a return to the days when scientific experiments with hallucinogens were taboo.

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