

Incense is psychoactive: Scientists identify the biology behind the ceremony

Religious leaders have contended for millennia that burning incense is good for the soul. Now, biologists have learned that it is good for our brains too. In a new study appearing online in *The FASEB Journal*, an international team of scientists, including researchers from Johns Hopkins University and the Hebrew University in Jerusalem, describe how burning frankincense (resin from the *Boswellia* plant) activates poorly understood ion channels in the brain to alleviate anxiety or depression. This suggests that an entirely new class of depression and anxiety drugs might be right under our noses.

“In spite of information stemming from ancient texts, constituents of *Boswellia* had not been investigated for psychoactivity,” said Raphael Mechoulam, one of the research study’s co-authors. “We found that incensole acetate, a *Boswellia* resin constituent, when tested in mice lowers anxiety and causes antidepressive-like behavior. Apparently, most present day worshipers assume that incense burning has only a symbolic meaning.”

To determine incense’s psychoactive effects, the researchers administered incensole acetate to mice. They found that the compound significantly affected areas in brain areas known to be involved in emotions as well as in nerve circuits that are affected by current anxiety and depression drugs. Specifically, incensole acetate activated a protein called TRPV3, which is present in mammalian brains and also known to play a role in the perception of warmth of the skin. When mice bred without this protein were exposed to incensole acetate, the compound had no effect on their brains.

“Perhaps Marx wasn’t too wrong when he called religion the opium of the people: morphine comes from poppies, cannabinoids from marijuana, and LSD from mushrooms; each of these has been used in one or another religious ceremony.” said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. “Studies of how those psychoactive drugs work have helped us understand modern neurobiology. The discovery of how incensole acetate, purified from frankincense, works on specific targets in the brain should also help us understand diseases of the nervous system. This study also provides a biological explanation for millennia-old spiritual practices that have persisted across time, distance, culture, language, and religion—burning incense really does make you feel warm and tingly all over!”

According to the National Institutes of Health, major depressive disorder is the leading cause of disability in the United States for people ages 15–44, affecting approximately 14.8 million American adults. A less severe form of depression, dysthymic disorder, affects approximately 3.3 million American adults. Anxiety disorders affect 40 million American adults, and frequently co-occur with depressive disorders.

Source: Federation of American Societies for Experimental Biology

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