



Letter to the Editor

Synthetic marijuana is no more marijuana



Synthetic Marijuana (SM) is a global health concern as an emerging drug of abuse. These are psychotropic designer drugs, synthesized in laboratories to mimic the effect of THC (Δ^9 -tetrahydrocannabinol), the major psychoactive ingredient in the naturally grown *Cannabis* (Marijuana plant). SM, most commonly known as ‘Spice’ or ‘K2’ first became available in U.S. in 2008 (Vardakou et al., 2010). It was assumed that synthetic marijuana is safe, non-toxic and elicits a psychoactive effect like regular marijuana. But the cases have reported certain serious toxicities with the use of synthetic marijuana and some users even required emergency treatment (Phillips et al., 2017).

Cannabis is an annual, flowering herb of *Cannabaceae* family, cultivated around world. The genus *Cannabis* has been diversified into various species, such as *Cannabis sativa*, *Cannabis indica*, and *Cannabis ruderalis*. *Cannabis indica* is cultivated in Indian subcontinents for production of various cannabinoids. *Cannabis* is used for medicinal and quasi-medicinal, religious and social customs and euphoric purposes (ElSohly, 2007; Khajuria and Nayak, 2014). The active constituent of cannabis is THC, the most common cannabinoid out of 70 identified so far. Use of THC leads to euphoria as it stimulates brain cells to release dopamine, because of which THC is a popular drug. Natural marijuana users show certain effects such as elevated mood, relaxation and altered perception (ElSohly, 2007).

Due to the presence of synthesized/altered chemicals in synthetic marijuana, some users reported psychotic effects like extreme anxiety, paranoia and hallucination. Some of the synthesized compounds in synthetic marijuana bind much more strongly to THC receptors than regular marijuana and contains powerful chemicals known as cannabimimetics (Harris and Brown, 2013). This can lead to adverse health effects. Some of the synthetic marijuana compounds may contain heavy metal residue that may be harmful to health. Also, it may lead to addiction that the users may crave for them whereas the regular marijuana users may experience withdrawal symptoms (Mills et al., 2015). Some of the recent studies have revealed that, the SM products may cause agitation, irritability, severe psychosis, drowsiness, bizarre hallucinations, confusion, tachycardia, hypertension, chest pain and possibly death (Weinstein et al., 2017; Müller et al., 2015). In some cases, acute hepato-toxicity have also been reported. Furthermore, the different synthetic chemicals and contaminants found in SM products, elicit adverse health effects previously unknown. Clinical treatment for SM product related toxicity is primarily symptomatic and based on intensive supportive therapy through laboratory monitoring (Müller et al., 2015). Analysis of active ingredients of SM products is a major challenge as active ingredients of these products are often difficult to determine with standard toxicological testing. Therefore, the assessment of consumed substances is often referred to specialized laboratories.

In India, SM products are available under various street names such as “Bombay Blue”, “Bonsai-18”, “Mojo”, “Silent Black”, “Skunk, Smoke”, “Space Diamond”. Other trade names associated with SM products are “K2”, “Spice”, “Algerian blend”, “Aroma”, “Black Mamba”, “Blaze”, “Bliss”, “Chaos”, “Chill”, “Dream”, “Fake pot”, “Fake weed”, “Genie”, “Lava”, “Mr. Happy”, “Mr. Smiley”, “Phantom Wicked”, “Red X Dawn”, “Scooby Snacks”, “Sence”, “Sensation Serenity”, “SpicyXXX”, “Spike 99”, “Tai Fun”, “Wicked X”, “Yucatan Fire”, “Zen” etc. (Vardakou et al., 2010; Mills et al., 2015; Weinstein et al., 2017). Legal issues pertaining to the synthetic drugs have not yet been finalized around the world due to extensive emergence of newer synthetic products. As per the law passed in US (Synthetic Drug Abuse Prevention Act of 2012, USA), most common chemicals used in production of synthetic marijuana have been made illegal for trading purposes. Young consumers, government authorities and healthcare professionals, social workers, volunteers should be aware of the adverse health conditions associated with use of synthetic marijuana (Fantegrossi et al., 2013).

Non-availability of standard analytical testing procedures in the medicolegal field makes the condition worse for physicians to the adopt a novel therapeutic approach in an effective way during treating cases pertaining to synthetic marijuana often leading to more fatalities in general (Tai and Fantegrossi, 2016). Further research is desirable to detect harmful contaminants found in these psychoactive substances and to understand their toxico-kinetics, so that the physicians may predict the adverse health outcomes beforehand leading to improved treatment prospects.

Conflict of interest

The authors have no conflict of interest to disclose.

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