

## Datura and Psychiatry: A Short Reappraisal

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The effect of Datura on mental health and subsequent use of it by general population is well known for decades. Whether as an involuntary or voluntary ingestion, robust literature exists indicating its potential to be used as a psychoactive substance. The genus Datura consists of several species with similar physical and psychological effects. They are *D. stramonium* (Gimson Weed), *D. suaveolens* (Angel's Trumpet) [1]. Since antiquity, *D. stramonium* has been used for religious purposes throughout the world and also for witchcraft in medieval Europe. Sixty four major and minor tropane alkaloids have been found in *D. stramonium*. Among major ones are hyoscyamine and scopolamine. Other typical minor alkaloids found are tigloidin, aposcopolamine, apotropine, hyoscyamine N-oxide, scopolamine N-oxide 17-20, 6a-ditigloyloxytropene and 7-hydroxyhyoscyamine [2, 3].

Datura has also been used as an indigenous cure in folklore or traditional medicine for several physical ailments. *D. stramonium* belonging to Solanaceae family and has antihistaminic, anticholinergic, acaricidal, antimicrobial, anti-inflammatory and anticancer activities. The alkaloids found are organic esters and inhibit central and peripheral muscarinic neurotransmission [3]. Apart from alkaloids, phytochemical analysis revealed that the plant contains saponin, tannin and glycosides and the secondary metabolites found in the plant material have antimicrobial activities [4]. It grows in waste places throughout the world and is cultivated in Germany, France, Hungary and South America [5]. Several parts of the plant including leaf, seeds, smoke from the burning leaf and fruit juice have been used in several conditions like headache, rheumatism, gout, haemorrhoids, falling hair, dandruff etc [3]. Moreover, few psychiatric ailments have also been reported to be treated with the seeds and leaves of *D. stramonium*. Among them is insomnia, epilepsy, for sedating hysterical and psychotic patients [6, 7]. But the growing literature suggests the other effects of this plant is detrimental to psychological health and may be fatal at times. Case series and reports of toxic syndrome after accidental ingestion do exist since last century [8-10]. The incidence of *D. stramonium* poisoning is sporadic, with clusters in 1990s and 2000s, mostly among adolescents and young adults according to United States media reports [11]. Frequently the toxic syndrome is characterised by hallucinations, dreamlike frenzy states, surge in strength, and anxiety with some aggressive compulsions, confusion, agitation and delirium. High levels of alkaloids, namely atropine,

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scopolamine and hyoscyamine, present in fruits and leaves of the plant competitively block the postganglionic para-sympathetic muscarinic receptors and the muscarinic receptors in the central nervous system and cause anticholinergic toxic syndrome [12].

Most commonly the settings of Datura intake were accidental or suicidal in nature. Khanra et al. [13] has reported a case of Datura dependence in a patient of paranoid schizophrenia where the patient was using *D. stramonium* in a regular pattern without any fatal consequences [13]. The self-medication hypothesis was considered to play a role behind patient's behaviour [13, 14]. Recently, United Nations Office on Drugs and Crime (UNODC, 2013) has included *D. stramonium* among the new psychoactive substances (NPSs) and found it to be abused at a rate of 2.6% among school going children [15]. The lack of legislation for *D. stramonium* unlike other psychoactive substances makes it a tempting choice for persons who are vulnerable for substance abuse. Hence, patients who are likely to abuse psychoactive substances should also be screened for *D. stramonium* abuse. To conclude, effective legislation against its unrestricted use should be implemented before it becomes an epidemic.

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