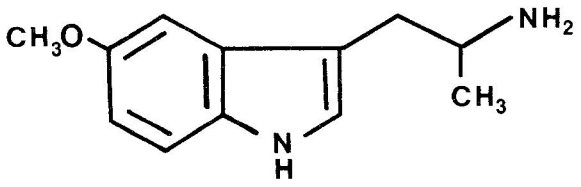
Profiles of Psychedelic Drugs



6. α,O-DMS

Description and Properties: α,O-DMS (alpha,O-dimethylserotonin hydrochloride, alpha-methyl 5-methoxytryptamine hydrochloride) is a white crystalline solid that readily turns pink on exposure to air. It is soluble in water and alcohol but insoluble in ether. It melts at 220-221°, the picrate salt melts at 196-197° and the free base melts at 102°. The latter is soluble in alcohol and most organic solvents.

History: The principle of alpha-methylation of metabolically labile biologically active amines, known to protect against enzymatic deamination of phenethylamines, as illustrated by the central availability of amphetamine, can be applied as well to the primary amines that contain the indole nucleus. Alpha-methyl tryptamine, unlike tryptamine itself, is orally active in humans as a psychoactive drug at dosages of 20 mg and the alpha-ethyl homolog leads to a talkative intoxication at some five times this dosage. The latter compound was marketed by Upjohn for a number of years under the name of Monase® as an antidepressant. The 5-methoxy substituted analog, α,O-DMS, was prepared in 1958 as an analog of the neurotransmitter serotonin. Its central activity in humans was first observed in 1976.

Biochemistry and Pharmacology: α,O-DMS has easy access to serotonin receptors as shown by its action on the spinal reflexes in mice but the nature of its action is complex and contradictory depending on the specific assay employed. It is an agonist in the stimulation seen in rat stomach fundus strip preparations and in the induced contractions of isolated rat uterine muscle systems. However, there is a loss of normal serotonin-induced ganglionic responses in the cat and an active inhibition of the effects of serotonin in blood platelet morphology and aggregation and in the status of rabbit eye vascularization. The compound easily passes the blood-brain barrier as the two normally effective impediments (the enzymatic removal of the primary amino group and the hydrophilic polarity of the 5-hydroxyl group) are effectively masked. It is thus centrally available and orally active in humans. Its metabolic fate and eventual disposition are at present unknown.

Human Psychopharmacology: α,O-DMS is effective in humans in the dosage range of two to four mg orally. There is consistent nausea and related gastrointestinal disturbance reported within the one-hour period starting about 30 minutes following administration. During the period of maximum intensity (two to four hours following administration) there are perceptual alterations experienced including enhanced color awareness, visual distortions and extensive retinal activity which is largely unpleasant. There is anorexia, subjective time expansion and considerable analgesia but without any decrement of fine motor coordination. Recovery requires an additional eight hours or more with considerable disturbance of normal sleep patterns. The overall experience is generally reported to be difficult and felt to be of inadequate value to compensate for the malaise and psychological complications presented. Further research with α,O-DMS is justified primarily by its close chemical analogy to serotonin and in the fact that it is the most potent indolic psychedelic agent yet described.

Legal Status: α,O-DMS is not named by the Federal Controlled Substances Act.

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