

From an old therapeutic drug to a potent hallucinogen.

Martine Frascht, Serge Schneider, Marc Schuman, Robert Wennig

National Health Laboratory, Toxicology Division ; CRP-Santé, Laboratory of Toxicology

✉ *University of Luxembourg, 162a Avenue de la Faïencerie, L-1511 Luxembourg*

📧 serge.schneider@lns.etat.lu; marc.schuman@crp-sante.healthnet.lu;
robert.wennig@lns.etat.lu

Scopolamine (hyoscine) is a naturally occurring alkaloid found in solonacea, the so-called "night shade" plants. Therapeutic applications of scopolamine are in ophthalmology, in prevention of motion sickness and premedication of anaesthesia. At high doses it is known to induce hallucinogenic effects. The N-butyl bromide derivate of scopolamine, commercialised as Buscopan[®], is commonly used as an antispasmodic.

Starting from the record of a prison inmate claiming to smoke Buscopan[®] in cigarettes and experiencing hallucinogenic effects, the possibility of the formation of scopolamine from N-butyl-scopolammonium bromide (NBS-Br) when burning Buscopan[®] in spiked cigarettes was investigated. LC-MS/MS in ESI mode was used to monitor the formation of scopolamine. Series of 8 cigarettes with and without filter, spiked with 10 mg of NBS-Br, were investigated in different smoking modes. The smoke of the burning cigarettes, the ashes and the filter were analyzed for the presence of scopolamine.

In all matrices (smoke, ashes and filter) and all smoking modes, scopolamine was detected. The results indicate that a consumer of Buscopan[®] spiked cigarettes inhales 100 - 130 μg of scopolamine. Although literature about scopolamine inhalation is lacking, pulmonary administrated drugs are rapidly and nearly completely absorbed.

Thus, reports of people claiming to smoke Buscopan[®] should be taken seriously and free delivery of Buscopan[®] tablets to prison inmates should be reconsidered as scopolamine overdose can cause serious health problems. Further studies include (1) the quantification of how much scopolamine must be inhaled to experience hallucinations and (2) the elucidation of the thermolysis reaction mechanism.