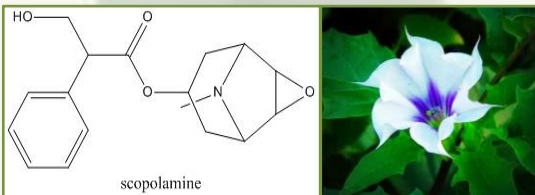


# The devil's breath

There are many ways to commit a crime, but the perfect crime is not a concept easily achieved. What would occur if there was something that could do just that? Scopolamine is the perfect example. This substance has been used for a longtime by humans and has been considered a gate to extra sensorial experiences with spirits. Nowadays though, has become a magnificent weapon.

## Scopolamine

Scopolamine, named also hyoscyine, is a tropane alkaloid drug with antimuscarinic effects. It is also a tertiary ammonium compound, so it can be easily absorbed by the gut and the most important thing is that it crosses the hematoencephalic barrier (blood-brain barrier). It is possible to find scopolamine almost in all the species of the Solanaceae family. The drug is stored in the plant's flowers, leaves, and stems. Scopolamine is obtained principally from *Datura stramonium*, *Brugmansia candida*, and *Hyoscyamus albus*.



Chemical structure of scopolamine. Extracted from the software ChemBioDraw

Alba Garrido Trigo  
Facultat de  
Bociències  
Grau en Biologia



## The cocktail: burundanga

This substance has many effects on the human body and it produces effects on a range of micrograms. Scopolamine itself is used as a treatment for some diseases in low doses (like kinetosis), but when it comes to use it as a weapon, it's mixed up with some other substances to produce the compost called *burundanga*. Burundanga is the cocktail and scopolamine is the main active principle. Regarding to its physical appearance, burundanga is a white thin dust similar to cocaine, tasteless and odorless. It seems that there is no unique way to make burundanga but there are some ingredients which are commonly used.

## Burundanga

- ✓ Scopolamine.
- ✓ Atropine.
- ✓ Benzodiazepines.
- ✓ Depressors of CNS.



The victim

**Bronchomotor tone affected**

**Reduced secretion of multiple glands**

**Tachycardia or Brachicardia**

**Antispasmodic effect on gastrointestinal tract**

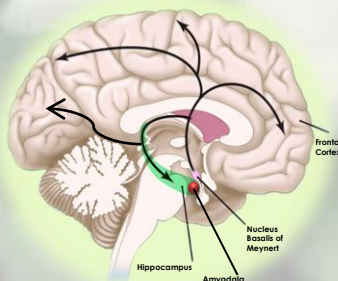
**Mydriasis**

PERIPHERAL EFFECTS

CENTRAL EFFECTS

**Loss of memory**

**Free will inhibition**



## Loss of memory

A characteristic feature of burundanga is that subjects do not recall memories of the time they were intoxicated, and the user loses all sense of reality. The effects are generally interpreted as a cholinergic deficit and related to the fact that acetylcholine is involved in memory functions.

Cholinergic projections to cortex and hippocampus are important in memory. It has been proposed that white matter damage in the temporal cortex would disconnect these cholinergic projections.

Disconnection of the hippocampus and inferior temporal cortex from their cholinergic inputs resulted in an anterograde memory. This suits perfectly with the type of amnesia that victims have: anterograde amnesia, they cannot remember what happened during the time burundanga was on their organism.

Gauthier, S. (2002). Advances in the pharmacotherapy of Alzheimer's disease. *166*(5), 616-623 [Modified]

## Free will inhibition

The poisoning with burundanga implies an incapability of response to a robbery or to a sexual assault. This absence of response it is related to cholinergic structures in our brain.

One of cholinergic nucleus of the CNS is the basal nucleus of Meynert, which is situated on the basal forebrain. This nucleus projects cholinergic neurons to other structures of the brain, but mostly to the cortex. It is thought that the cholinergic neurons of Meynert's nucleus which project to the cortex have an important role on one's ability to make decisions. A hypothesis could be that burundanga, specifically scopolamine, interferes on this cholinergic transmission to the cortex (since scopolamine pass through blood-barrier) and stops the ability of taking decisions.

This behavior could be also possible because of the action of scopolamine on brain structures which normally controlled the emotional behavior, specially the defensive behavior. This is controlled by the corticomedial amygdala.

## Criminal use

In the past, many American tribes have used scopolamine in several rituals to induce visions to individuals. Nowadays, it is used in the same geographic zones by prostitutes to drug their clients and rob them. But it's usually used by criminals too. A myth has been created and the media has been helping on its growth. This myth resides in the power of the drug to overturn people's will. Any scientific study has demonstrated this fact, taking into account that this substance has been largely studied by medicine for many centuries. Nowadays burundanga is being used for rob and rape, but most of the cases where this drug is used is to steal without resistance. This substance has been the interest of many people throughout history, in EEUU the CIA started the MK-ULTRA and MK-SEARCH programs between the 50s and 70s of last century to find this truth serum between different legal and illegal psychoactives. Drugs were administered to subjects without their knowledge or consent as evidenced by documents declassified a few years ago.

The search for a truth serum has been an obsession for Intelligence Services during the last century without having come to find this substance. Scopolamine has been extensively studied in this regard without any success. The incoherent, disorganized speech and uninhibited that can produce scopolamine is not useful as a truth serum for this type of purposes.