Evaluation of Alkaloids in Ipomoea violacea
by J.J.J. Smith

Dose: T+ 0:00  3.7 mg  oral  Morning Glory  extract

Body weight:  0 kg

An Evaluation of the Psychoactive Effects of Alkaloids Found in Ipomoea Violacea
John Jacob Jingleheimer Smith

Abstract:
Alkaloids present in the seeds of a variety of morning-glory (Ipomoea violacea) are reported to be psychoactive in humans. The quantity of alkaloids present in packets of commercially available morning-glory seeds was estimated. The alkaloids were extracted and consumed by two human subjects. The subjects reported dramatic changes in their mood, thought processes, and perception.

Introduction:
It has been reported in many places that the alkaloids contained within the seeds of various morning glories (Ipomoea), most notably, Ipomoea violacea (tricolor) var. ‘Heavenly Blue’ produce psychoactive effects when ingested by humans. At least 8 alkaloids* of the type found in the rye ergot fungus (Claviceps purpurea) have been isolated from I. violacea (Wilkinson, Hardcastle, McCormick, 1987). These compounds are closely related to the semi-synthetic hallucinogen, lysergic acid diethylamide-25 (LSD). In fact, many reports about experiences resulting from the recreational or mystical use of morning-glory seeds have appeared on the Internet. This experiment was conducted in order to assess the quantity of alkaloid that constitutes an active dose that a person might ingest, and in order to better understand the nature of the psychoactive experience produced. An attempt was made to estimate the quantity and potency of those alkaloids present in commercially available (retail) seeds intended for use as household ornamentals. Further, these compounds were extracted and tested upon 2 human subjects: the experimenter and one volunteer. A subjective account is included in the discussion.

Materials and Methods:
Twenty (20) packets of ‘Heavenly Blue’ morning glory seeds were purchased retail from local department stores. Two sources were employed; ten (10) packets each from two seed companies, (the names of which shall be withheld to avoid undue pressure upon their establishments from the public and government.) All packets were packed for planting in 1998. One lot (brand A) was grown in France, the other lot (brand B) was grown in Holland. The number of seeds contained in each packet was carefully counted. The contents of each individual packet were weighed using a plastic 2-beam balance. The total mass of seeds from each source was determined and compared to
evaluations from a previous study (Friedman, Dao, Gumbmann, 1989) so as to make an estimate of alkaloid content. The total alkaloids were expressed as microgram equivalents of LSD-25 at an estimated average potency of 1/10th of LSD by weight. The conversion factor equating the potency of mg/alkaloid to micrograms/LSD is an educated guess, based upon medical literature and various pieces of anecdotal evidence not cited here.

Seeds from both samples were combined in a large Mason jar. The seeds were washed with a few drops of Dawn dish detergent in cool tap water with shaking for 2-3 minutes. The discolored wash water was discarded. The seeds were rinsed in a flour sifter for 5 minutes under a tap. The seeds were rinsed in the Mason jar for 5 minutes using cool tap water and shaking. The seeds were drained, spread, and allowed to air dry. Lighter fluid (naptha) was qualitatively evaluated for impurities by evaporation on a watch glass (eyeglass lens) to check for residue. The naptha evaporated cleanly with no residue. The lighter fluid was spot tested on plastic equipment in order to insure it would not dissolve or soften it. The dry seeds were ground in a hand-operated pepper mill. The grade (fineness) of the material was variable due to impatience on the part of the experimenter. Hours were spent in grinding the seeds to a powder. Quality of the powder ranged from fine to coarse, with the median being about the consistency of corn meal (grits) or a little finer. This seed powder was mixed with about 300 mL of lighter fluid (naptha) in a mason jar. The mixture was shaken vigorously for 5 minutes. The mixture was allowed to stand for 30 minutes with re-agitation after 10 minutes had elapsed. The mixture was filtered through a double coffee filter. Some material (10 minutes. Filter paper (coffee filter) was placed in a small glass casserole dish and seed mush smoothed to uniform thickness with a spoon and evaporated at room temperature for about 10 hours until it appeared dry, and the smell of naptha was faint. An electric fan was used to help remove the last traces of naptha (2 hours). The seed powder and inner filter were placed in a clean mason jar and saturated with 100 mL Everclear (76.5%/153 proof ethanol). The mixture was shaken for 10 minutes. Because this class of alkaloids is easily decomposed by light and heat (Wilkinson, et al. 1987), the mixture was stored in a dark refrigerator for five (5) days to reduce the possibility of destroying the alkaloids by light and heat. On the 5th day, the temperature of the mixture was measured at -10 C, (possibly because the refrigerator was small and turned to it’s lowest setting.) The extract was filtered off, and the seed pulp was rinsed with ~25 mL of alcohol, and the filter rinsed with ~10 mL of alcohol. 100 mL of this solution was bottled in two 50 mL glass bottles and kept refrigerated in darkness until bio-evaluation.

Results:

Table 1-1 (Brand A) Table 1-2 (Brand B) NumberMass (g) NumberMass (g)

<table>
<thead>
<tr>
<th>Pkt. #</th>
<th>Mass (g)</th>
<th>Pkt. #</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1361.30</td>
<td>1612.00</td>
<td>2371.33</td>
<td>2531.75</td>
</tr>
<tr>
<td>1438.43</td>
<td>1471.60</td>
<td>5381.33</td>
<td>5421.35</td>
</tr>
<tr>
<td>7361.30</td>
<td>7521.73</td>
<td>8341.18</td>
<td>8561.90</td>
</tr>
<tr>
<td>10381.30</td>
<td>10511.68</td>
<td>9361.28</td>
<td>9551.78</td>
</tr>
<tr>
<td>35812.70</td>
<td>52817.35</td>
<td>35.81.27</td>
<td>52.81.74</td>
</tr>
</tbody>
</table>

Total # of seeds 886
Total mass of seeds 30.05
Avg mass per seed 34 mg

Sources in literature indicate that the quantity of alkaloids present in a sample of Ipomoea seeds will vary according to the location in which they are grown. The following figures were used to estimate the total alkaloids in our samples. (Wilkinson et al. 1987; Friedman et al. 1989).

<table>
<thead>
<tr>
<th>Point of Origin</th>
<th>Alkaloids (mg) per 100g seed</th>
<th>Holland</th>
<th>35mg/100g</th>
<th>Denmark</th>
<th>22mg/100g</th>
<th>Germany</th>
<th>10mg/100g</th>
<th>USA (Georgia)</th>
<th>52mg/100g</th>
<th>Average</th>
<th>29.75mg/100g</th>
</tr>
</thead>
</table>

There are different ways to use this data. Using the lowest figure, we would expect our combined samples to contain at least 3.0 mg of alkaloids. Using the highest figure, we would expect our samples to contain 15.6 mg of alkaloids. Using the average alkaloid content of all the previously evaluated samples, we would expect the total fraction to be about 9.0 mg. We can reasonably expect the mass of alkaloids in our extract to fall within this range of 3.0mg - 15.6mg. Comparing brand A to the previously evaluated sample from Germany (borders France) one gets an estimate of 1.3 mg of alkaloid. Comparing brand B with the previously evaluated sample from Holland, one gets an estimate of 6.1 mg of alkaloid. The total of these estimates for brands A and B is 7.4 mg of alkaloids. We would expect, then for the total alkaloid fraction to be 7.4 mg. Assuming an average potency 1/10th that of LSD, the potency of the extract could be anywhere from 300 to 1,570 micrograms of LSD-25. Divided into two doses that works out to about 150-785 microgram equivalents. 370 microgram LSD equivalents per dose were expected. Some losses occurred during processing because of incomplete extraction, discarded solution, and exposure to sunlight.

**Subjective Effects:**

The author, Mr. Smith, used himself as a subject. He and his associate/volunteer, Mr. Jones, proceeded to consume the solution. The extract was combined with orange juice and ice cubes, and taken by mouth. Mr. Smith consumed his entire portion, while Mr. Jones consumed about half of his portion. Unfortunately, no sober observer was present to record the subsequent events. No log or written record of them was taken.

Jones and Smith reported effects within half an hour of ingestion. Mr. Smith experienced altered perceptions of space and time. Smith claimed that doorframes and windows seemed out of proportion. Anything exhibiting a regular geometric form appeared distorted to him. Colors brightened and became more artificial in appearance. Both subjects reported that their sense of the passage of time was disrupted such that the concept of time itself seemed meaningless to them. Mr. Smith reported that high-pitched background noises, electric motors, engines, etc, became very noticeable. Other sounds appeared rich and sometimes distorted. Jones and Smith noted muscular tension and slight agitation.

Mr. Jones reported a kinesthetic hallucination involving his leg, saying that it seemed to move through a much greater distance than he intended it to. Regrettably, Mr. Jones began to experience ill effects such as nausea and vomiting. Mr. Jones became flushed in the face, and began to cry in front of Mr. Smith, which was out of character for him. The two decided to go outdoors for a
walk, as the effects of the extract seemed no longer to be increasing. Mr. Jones’s spirits appeared to improve upon venturing out of doors. The two subjects noticed more effects outdoors. Mr. Smith noticed an enhanced geometry in his perception of a pine tree, and enhanced whorls on the branch of a holly bush. Mr. Jones, looking at the ground, exclaimed, ‘Whoa, it’s liquid!’ He later explained that when he stepped upon the ground, it appeared fluid to him.

The two subjects soon found themselves lost, only a few blocks away from their point of origin. Familiar signs and lettering on storefronts appeared foreign to Mr. Smith, as if written in Cyrillic, or some other language, and were only resolved and understood with difficulty. The two wandered into a local coffee shop where they drank water. Nobody appeared to notice their condition. As evening progressed into night, the two wandered onto the campus of a local university. Several hours after consuming the extract, the effects began to subside. Mr. Smith noticed that every blade of grass was thrown into sharp contrast by the lamps overhead, and it reminded him much of a moonscape, a ‘walking on the moon’ effect. Jones, who is not usually very talkative, began to speak more. Smith and Jones shared ideas about philosophical, psychological, and social issues at greater length and in greater detail than usual before going home for the night. Smith parted ways with Jones after both parties agreed that the effects of the chemicals seemed to be wearing off. Smith feared that he would experience insomnia, reported in several accounts of the morning-glory experience, however he had no difficulty in sleeping.

Discussion:

The extraction was successful. The tiny amount of alkaloid consumed by the two subjects had a powerful effect on subjects’ behavior, as indicated by their inability to successfully navigate in familiar territory. There was evidence for disruption of cognition: both subjects reported being unable to comprehend time in a linear fashion, and one reported difficulty in comprehending written language. One person expressed extreme emotional upset. Both persons reported alterations of visual perception. These effects persisted for hours.

Conclusion:

The alkaloids present in Ipomoea violacea (=tricolor) var. ‘Heavenly Blue’ are quite psychoactive, capable of producing a profound alteration in perception, emotion, and thought processes in humans. The quantity of these alkaloids present in a packet of commercially available seeds can be expected to vary widely.

Acknowledgements:

The author would like to thank the many brave and independent minded researchers who came before him, who have risked so much in the pursuit of truth. Thanks also goes to those who helped bring this information to you, the reader, by proofreading, offering constructive criticism, and providing the anonymity necessary for such a work.

References:

Botanical Gazette 149(1); 107-109
Friedman, M., Dao, L., Gumbmann, M.R. 1989 Ergot alkaloid and chlorogenic acid content in different varieties of morning-glory (Ipomoea spp.) seeds. Journal of Agricultural Food Chemistry 37; 708-712