

# Unknown Herbal Poisoning with Fatal Outcome

ARIFUL BASHER<sup>1</sup>, KAMRUZZAMAN KHOKON<sup>2</sup>, ULRICH KUCH<sup>3</sup>, STEFAN W TOENNES<sup>4</sup>, ABUL FAIZ<sup>5</sup>

<sup>1</sup>BangaBandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

<sup>2</sup>Comilla Medical College, Comilla, Bangladesh

<sup>3</sup>Institute of Occupational Medicine, Social Medicine and Environmental Medicine, Centre of Health Sciences, Goethe University, Frankfurt am Main, Germany

<sup>4</sup>Institute of Forensic Toxicology, Centre for Legal Medicine, Goethe University, Frankfurt am Main, Germany

<sup>5</sup>Dev Care Foundation, Dhaka, Bangladesh

## Abstract

**Background:** Herbs can be toxic and may be even life-threatening. The mixture of different plants and herbs made by traditional healer and their canvassing on the street attract general people. Here, we report four cases of severe herbal poisoning.

**Case presentation:** In 2008, four young people rushed to DMC Hospital in the early morning with a history of taking herbal medicine (tonic) on that night for gratification. About 3–4 h after ingestion, they experienced repeated vomiting and abdominal pain. Two patients deteriorated within the hours after admission with restlessness, progressive unconsciousness, and died soon after. The other two patients absconded from the hospital, including the person who prepared the tonic. Screening of the tonic by gas chromatography-mass spectrometry did not reveal toxic components.

**Discussion:** The suspected herbs used for the preparation of that tonic were Santalum album (Chandan wood) which contains Santalol and other etheric oils; Plantago ovata (Ispaghula Husk) containing diverse alkaloids, phenols, etc.; and Mimosa pudica which is the common Mimosa and contains the alkaloid Mimosine. The nature of the tonic and source of the intoxication could not be finally elucidated.

**Conclusion:** The described cases of unknown herbal poisoning in Bangladesh highlight the need for awareness campaigns targeting the population at risk.

**Keywords:** Acute Toxicity; Herbal Drug; Fatal Poisoning; Intensive Care; Public Health

**How to cite this article:** Basher A, Khokon K, Kuch U, Toennes S.W, Faiz A. Unknown Herbal Poisoning with Fatal Outcome. *Asia Pac J Med Toxicol* 2018;104-6.

## INTRODUCTION

Herbs are used worldwide for a wide variety of indications and are usually considered to be nontoxic by the general public due to their natural origin. In health care, health professionals, quacks, and other nonmedical professionals, such as witch doctors, dispense herbs for either therapeutic or tonic purposes. This in conjunction with lower costs compared with conventional medications is the major attraction to these treatments. Despite the general belief, upon exposure, the clinical toxicity may vary from mild to severe and may even be life-threatening (1). Here, we report four cases of unknown herbal poisoning with two fatal outcomes.

## CASE REPORT

Four young patients rushed to the emergency department of Dhaka Medical College and Hospital (DMC) on July 28<sup>th</sup>, 2008 in the early morning with the history of taking herbal medicine on that night. All of them were garments workers staying in the same house. One of the victims brought an

indigenous medicine book. He prepared an herbal tonic according to the instruction of that book for the purpose of getting gratification and power for masculinity. Pieces of Haritaki (Chebulic myrobalan), Bibhitaki (Beleric myrobalan), Indian Jujube seeds, Chandan wood, Ispaghula Husk, *Mimosa pudica*, and other substances were used for this tonic (Figure 1). They all together took the preparation at the same time, and about 3–4 h after ingestion developed repeated vomiting and intractable abdominal pain. Two patients deteriorated within an hour after admission; rapidly became restless and unconscious. One 35-year-old patient with *Glasgow Coma Scale* (GCS) = 5 developed circulatory depression; blood pressure-70/50 mmHg, gasp in respiration, and died soon after. A 28-year-old patient developed an electrocardiogram-confirmed ventricular tachycardia (Figure 2) with circulatory shock and coma (GCS = 6). He was referred to the coronary care unit but died on that morning in spite of maximum supportive management. The other two patients gradually improved and absconded from the hospital, including the person who prepared the tonic. Screening of this herbal preparation by gas chromatography-mass spectrometry

\*Correspondence to: Ariful Basher; Resident Physician, Critical Care Medicine, BangaBandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.  
Tel: +88 017 11 07 8752, E-mail: arifulbasher@yahoo.com  
Received 04 March 2018; Accepted 21 July 2018

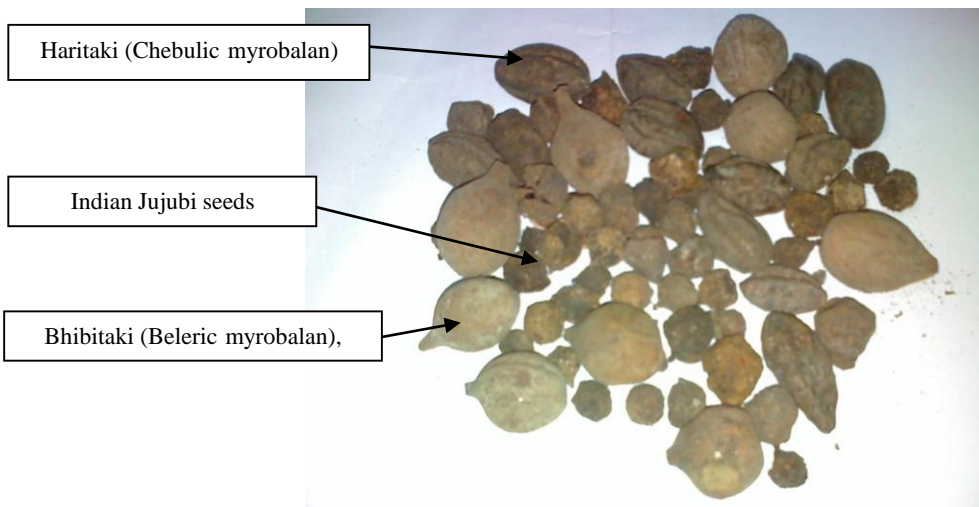
did not reveal toxic component(s).

**DISCUSSION**

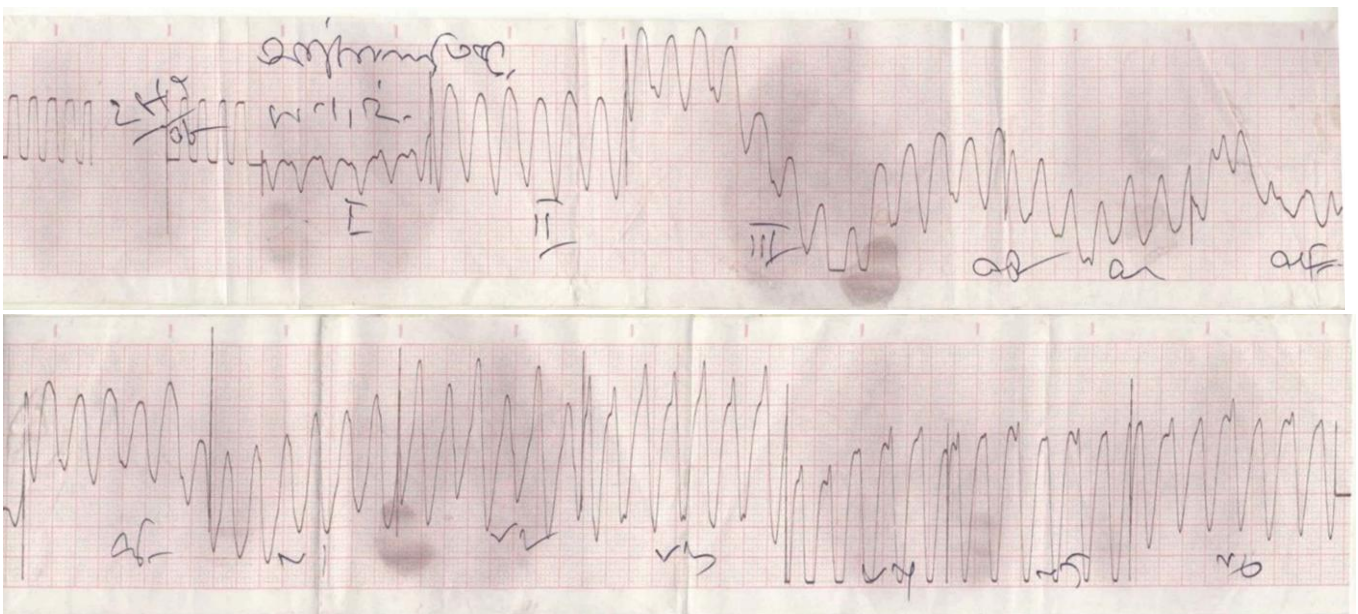
An increase in morbidity and mortality associated with the use of poisonous herbs has been reported over the last few years (2). Herbal medicines are associated with a wide spectrum of toxicities (3). Physicians should enquire about the use of such remedies when taking a general medical history, particularly in those patients with unexplained symptoms and organ failure. In most instances, treatment includes stopping the offending agent together with supportive care. In industrialized nations, herbal medicine is now a multi-billion dollar industry, and in developing countries, up to 80% of people rely on plant-based medicines (4).

In traditional medicine, herbs are used only after processing to reduce the amounts of toxic alkaloids. Faulty processing after harvest or during decoction preparation and the use of a greater than recommended dose will increase the risk of acute poisoning (1). Though it is used worldwide, in Bangladesh, its use is especially common because of their easy accessibility, no expensive expert consultation is required, and the herbal remedies are considered safe.

Here, we describe four cases of herbal poisoning in Bangladesh. The herbal tonic was obviously prepared according to instructions in an indigenous medicine book but which herbs were actually used could not be affirmed. For the hypothetical ingredients, it is known from the botanical



**Figure 1. Different ingredients of herbal tonic prepared by an offender**



**Figure2. ECG showing ventricular tachycardia**

literature that *Santalum album* (Chandan wood) contains Santalol and other etheric oils ; *Plantago ovata* (Ispaghula Husk) contains diverse alkaloids, phenols, etc. ; and *M. pudica*, which is the common Mimosa, contains the alkaloid Mimosine; all of which can be toxic by oral uptake in large doses only (5-7).

The identity, authenticity, and quality of crude plants are often uncertain and difficult to assess (5). The quality control is virtually nonexistent; government agencies seem unwilling to adopt any guidelines. Therefore, variability in the amount of active ingredients must be assumed and faults in the processing or mixing of the herbs may occur. In the present cases, a specific therapy or intensive care management scheme could not be established and two of the four persons died. This highlights the need for awareness campaigns targeting the population at risk. It is recommended that all these easily marketed ayurvedic and other techniques are subjected to a separate drug administration department and also increased public awareness to prevent untoward outcomes as described here.

**Conflict of interest:** None to be declared.

**Funding and support:** None.

---

## REFERENCES

---

1. Shaw D, Graeme L, Pierre D, Elizabeth W, Kelvin C. Pharmacovigilance of herbal medicine. *J Ethnopharmacol* 2012;140:513-8.
2. Kumar S. Tackling thorny issues of herbal medicines worldwide. *Lancet* 1998;351:1190.
3. Parmar V. Herbal medicine: Its toxic effect and drug interactions. Available from: <http://www.Theiaforum.Org>.
4. But PP. Herbal poisoning caused by adulterants or erroneous substitutes. *J Trop Med Hyg* 1994;97:371-4.
5. Ernst E. Toxic heavy metals and undeclared drugs in Asian herbal medicines. *Trends Pharmacol Sci* 2002;23:136-9.
6. Farah MH, Edwards R, Lindquist M, Leon C, Shaw D. International monitoring of adverse health effects associated with herbal medicines. *Pharmacoepidemiol Drug Saf* 2000;9:105-12.
7. Burdock GA, Carabin IG. Safety assessment of sandalwood oil (*Santalum album* L.). *Food Chem Toxicol* 2008;46:421-32.