# Hazards of a Traditional Eye-Cosmetic - SURMA

Pages with reference to book, From 7 To 8

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## Abstract

Surma is a traditional eye cosmetic and eye-cure of the Indo-Pakistan subcontinent. It is made from antimony suiphide and may contain lead as an accidental impurity remaining in antimony suiphide or as an intentional adulterant. Ingestion of lead through constant use of surma can pose a serious health hazard. This study is an attempt to assess the lead content of surma in forty separate samples gathered from the Rawalpindi/Islamabad area. (JPMA 32:7, 1982).


## Introduction

Surma is supposed to protect the eyes from the glare of the sun by absorbing its rays and to cure impaired eyesight, Pterygium and opacity (Nadkarni, 1954).
Traditional surma used to contain antimony suiphide ($Sb_2$ $Sb_2$ as stibuite alone or in combination with vegetable or inorganic drugs (Said, 1969). Surmas of today may be pure powdered galena (Pb S), Charcoal or may be combination of galena with vegetable ashes.
Used by men, women and children, lead from surma can easily be ingested into the digestive system through hands contaminated by surma. The ingested lead sulphide reacts with the hydrochloric acid of the gastric juice to form lead Chloride. (Aslam et al., 1979). This results ii1 a marked increase in solubility of lead materials. Chronic lead poisoning develops insidiously and is often not recognized until it is far advanced and symptoms have already developed. General symptoms of lead poisoning are a lead line at the margin of gums, anaemia, headache, constipation, sweating, rcstlessness a rigid abdomen and psychic changes. It also produces spasms of smooth muscles giving rise to severe colic, hypertension and uterine spasm which can result ia abortion (Graham, 197!). Infants may also suffer from lead poisoning through lactating mothers who are poisoned by cosmetics containing lead (Modi, 1963). It is, therefore, quite evident that lead contaminated surma could be a serious health hazard. In view of the seriousness of the problem it was proposed to screen the locally available surma for the presence of lead.

## Material and Methods

Forty samples of surma, locally produced and a few bought from abroad by Hajis, were collected frtkn different localities of Rawalpindi/ Islamabad. Thirty eight samples were in powdered form and two in lumps. These were screened for the presence of lead by conventional chemical method (British Pharmacopeia, 1980). Samples giving positive results for lead were quantitatively analysed on Parkin Elmer Atomic Absorption/Spectrometer.

## Results

The results obtained are presented in the accompanying table.

Lead Content of "Surma" from Various Areas

| Sr. No. | Source | Powder Colour | Percentage of Lead |
|---|---|---|---|
| 1. | Brought by Hajis from Mecca | Black | 81.37 |
| 2. | Brought by Hajis from Mecca. | Black | 46.16 |
| 3. | Moti Bazar Rawalpindi | Black | 32.83 |
| 4. | Raja Bazar Rawalpindi (Khanachafrosh) | Black | 26.45 |
| 5. | Moti Bazar Rawalpindi | Black | 24.93 |
| 6. | Namak Mandi Rawalpindi (Khanachafrosh) | Black | 17.33 |
| 7. | Raja Bazar Rawalpindi (Khanachafrosh) | Black | 15.05 |
| 8. | Baqai Dawakhana Bohar Bazar Rawalpindi | Black | 13.98 |
| 9. | Moti Bazar Rawalpindi | Black lump | 13.83 |
| 10. | Namak Mandi Rawalpindi (Khanachafrosh) | Black | 13.68 |
| 11. | Moti Bazar Rawalpindi | Black | 12.62 |
| 12. | Moti Bazar Rawalpindi | Black | 9.15 |
| 13. | Brought by Hajis from Mecca | Black | 1.67 |
| 14. | Kohl Jawahar, Hamdard Trust Pakistan | Dark brown | 1.65 |
| 15. | Kohl Jawahar, Dawakhana Hakim Ajmal Khan | Greyish black | 0.28 |
| 16. | Islamia Store G/6/1-2 Islamabad | Black | 0.064 |
| 17. | Fareedi Surma Wasim Traders, 33-A Shah Alam Mkt., Lahore | Black | 0.013 |
| 18. | Fareedi Surma Wasim Traders, 33-A Shah Alam Mkt., Lahore | Black | * |
| 19. | Moti Bazar Rawalpindi | Black | * |
| 20. | Binger, Hamdard Dawakhana (Waqf) Pakistan | Black | * |

*Remaining 20 samples show absence of lead. Quantitization yet not confirmed.

Fifty percent of the samples contained lead (as Lead Suiphide) in varying proportions ranging from 0.03% to 81.37%.

**Discussion**

The study of lead contents in locally available surma is the first of its kind in Pakistan. The primary object of the study is to highlight the problem so as to make the public aware of the possible hazards of the lead ingested through adulterated/contaminated surma. Lead absorbed into the blood can raise the blood lead level to a fatal point. Lead in surma may be present either as an impurity in the antimony ore used to make surma or as an adulternt used as a cheaper substance which is visually similar to antimony. The problem is aggravated by the fact that surma manufacturers mostly lack any scientific knowlege for the proper identification of pure antimony sulphide which they use to make surma.
The samples analysed revealed lead concentration from 0.03% to 81.37% which coincides with the results (lead contents as high as 86%) of a similar study carried out by Aslam et al (1979). There have been reports from England that immigrants from Pakistan, Bangladesh and India have a high incidence of lead poisoning and the source of such lead poisoning has been confirmed to be surma (Snodgrass et. al., 1973; Aslam et al., 1979; Alexander and Delvess, 1971; Ali et al,. 1978).
The samples containing lead are considered to be sufficient to cause chronic lead poisoning as a result of a regular use over the years. However the exact magnitude of the problem can only be assessed by investigating the blood lead concentration of habitual users which is the second part of our study.

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