

## **E2-41 Preliminary chemical studies on ayurvedic purification process of mercury**

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Ayurveda is a long established system of medicine which originated in India. The branch of Ayurveda which deals with processing and therapeutic use of mercury and other metals and minerals is called the "*Rasa Shastra*". When mercury is used in "*Rasa*" preparations, the metal is made free from "*dosas*" and "*defects*" by 2 processes is known as "*Shodhana*" (purification) and "*Marana*" (incineration).

In the process of purification of metals and minerals, they are impregnated with decoction and juices of various types of plant ingredients and then reduced to fine particles by grinding. The purification of mercury is carried out with

the help of betel juice, garlic juice and tripal decoction respectively. The objective of this study was to find the role played by the above mentioned traditional ingredients in the purification of mercury.

Mercury samples and the remainder of extracts at each stage of the purification process were analysed using Energy Dispersive X-ray Fluorescence Spectroscopic (EDXRF) method and Total Reflection X-ray Fluorescence Spectroscopic (TXRF) method respectively. EDXRF spectrum of crude mercury sample (50.00 g) shows 5 peaks due to the presence of mercury and 4 peaks due to the presence of calcium, chromium, iron and rubidium. EDXRF spectrum of purified mercury samples, after each step of purification showed compatible results with the crude spectrum. The TXRF spectrums of the remainder of the extracts after each step of purification indicate the presence of mercury ( $5 \times 10^{-5}$ - $15 \times 10^{-5}$  mg/L).