



Editorial

Disinformation of Ayurvedic medicines may harm their progress and popularity - Should not it be stopped?

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Recently, *Times of India* has published a report title with "Poison in Ayurvedic drugs" which was based on the few selected examples of Ayurvedic treatments as well as the views from some allopathic practitioners (John and Sharma, 2017). These instances claimed the higher level of mercury and lead in the Ayurvedic preparations than that of a permissible limit of these metals which are harmful to human beings. In this report, Dr Ghani Mansuri, a retired principal of Akhandanand Ayurvedic College says that an Ayurvedic drug that has any deviation from prescribed *Rasashastra* process contains traces of heavy metals. These are mainly *Bhasmas* (ashes) which are traditionally prepared by purification of the metal by multiple cooling and heating cycles, almost 100 times, and by the addition of specific herbs. In modern time, the poor quality control leads to the improper purification, contamination and adulteration with heavy metals at the stage of preparation.

Ayurveda is one of the traditional medicinal systems with an established history that goes back more than 5,000 years. This ancient Vedic knowledge is considered to be one of the oldest healing sciences and still serving mankind. *Ayurveda* has originated thousands of years ago in India and called the "Mother of All Healing". Its concepts about health and disease promote the use of herbal compounds, special diets, and other unique health practices. The knowledge of *Ayurveda* at various times had an impact on a number of branches of medicine: From ancient Greek medicine in the West to the Chinese and Tibetan in the East. *Ayurveda* continues to retain its prominent position in the modern world, being officially recognised by the World Health Organization (WHO) and enjoying great popularity in the United States, Germany, Italy and the Netherlands. *Ayurvedic* medicine uses a variety of products and practices. These products are made either of herbs only or a combination of herbs,

metals, minerals, or other materials as described in *Rasashastra*.

It is noteworthy that there are very specific pharmaceutical procedures and techniques described in the *Rasashastra* literature which convert the toxic metals/ minerals into a suitable dosage form. The *Bhasmas* prepared are well tolerated both for short-term and long-term use. Moreover, it is claimed that their prolonged administration is required to achieve the rejuvenation effect (Acharya, 1969). *Ayurvedic* theory attributes the important therapeutic roles to metals such as mercury and lead. *Ayurveda* experts estimate that 35% to 40% of the approximately 6000 medicines in the *Ayurvedic* formulary intentionally contain at least 1 metal. Metal-containing *Ayurvedic* herbal medicines are purportedly "detoxified" through multiple heating/cooling cycles and the addition of specific herbs. An important feature is the use of metals, including several that are considered to be toxic in evidence-based medicine. In addition, to mercury, gold, silver, iron, copper, tin, lead, zinc and bell metal are used. The usual means used to administer these substances is by preparations called *Bhasma*. Calcination, which is described in the literature of the art as *Shodhana* (purification), is the process used to prepare these *Bhasma* for administration. Sublimation and the preparation of a mercury sulphide are also in use in the preparation of its *Materia Medica*. A variety of methods is used to achieve this. One involves the heating of thin sheets of metal and then immersing them in oil, extract, cow urine and other substances. *Ayurvedic* practitioners believe that this process of purification removes undesirable qualities and enhances their therapeutic power.

It is generally claimed that these metals are detoxified during the highly complex manufacturing processes described in *Ayurveda*, especially in *Rasashastra* texts (Galib et al., 2011). Reviewing *Charaka Samhita* reveals that *Ayurveda*

utilised metals for various therapeutic and non-therapeutic purposes. The text emphasises the need to observe great caution while using metals and directs that they should be reduced to micro-fine powders through the specially designed process *Ayaskriti*. The reduced metals may contain associated compounds together with major elements, which have their own significance in the process of disease pacification. In addition, a few of the metallic powders also may provide nourishment, as they are a combination of many trace elements and electrolytes. In the recent past, some researchers have suggested that these metallic/mineral preparations are anti-oxidants which fight free radicals, and disease-causing organisms and also help in developing immunity. Studies carried out in different parts of India have indicated that when metals and minerals are converted into medicines strictly adhering to the classical guidelines specified in ancient texts; they are devoid of any toxicity even at the level of 100 TEDs. Histopathological studies of visceral organs in these studies revealed no apparent changes, i.e., a study on *Rasa Karpura* established the safety of this compound even at 40 TED. Furthermore, the effectiveness of Ayurvedic medicines is not usually due to single active ingredients, but, usually due to complex mixtures of the active compounds which target the pathological manifestation in different ways. Hence, Ayurveda differs from systems of medicine using single ingredients.

Keeping all these in mind, it can be said that the damning reports such as those of unacceptable levels of heavy metals in Ayurvedic preparations should not be considered cause for alarm. The concepts, practices and products of the Ayurvedic system of medicine are unique, and its therapeutic values are needed to be explored by utilising and adopting the sophisticated technology, only then can ailing humanity benefit from its age-old remedies.

On the other hand, modern medicine finds that mercury is inherently toxic and that its toxicity is not due to the presence of impurities. While mercury does have anti-microbial properties, and widely used in Western medicine, its toxicity does not warrant the risk of using it as a health product in most circumstances. Ayurvedic practitioners claim that these reports of toxicity are due to failure to follow the traditional practices in the mass production of these preparations for sale, but modern science finds that not only mercury but also lead is inherently toxic. The government of India has ordered that Ayurvedic products must specify their metallic content directly on the labels of the product. However, Dr M.S. Valiathan noted that the absence of post-market surveillance and the paucity of test laboratory facilities [in India] make the quality control of Ayurvedic medicines exceedingly difficult at this time (Valiathan, 2010).

There are various *Rasa* medicines such as *Aamvatari rasa*, *Anandbairava rasa*, *Aroyavardhini*

vati rasa, *Basant maliti rasa*, *Chandraprabha vati* (*Chandraprakash rasayana*, *Dhatri lauha*, *Hinguleshavara rasa*, *Kaishor guggul*, *Punarnavadi mandoora*, *Yograja guggul* etc. are used in several diseases in acute and chronic conditions. The studies have examined Ayurvedic medicine, including herbal products, for specific conditions. However, there are not enough well-controlled clinical trials and systematic research reviews—the gold standard for Western medical research—to prove that the approaches are beneficial. Most clinical trials of Ayurvedic approaches have been small, had problems with research designs, or lacked appropriate control groups, potentially affecting research results (Chauhan et al., 2015). The government of India itself and other institutes throughout the world support clinical and laboratory research on Ayurvedic medicine, within the context of the Eastern belief system. But Ayurvedic medicine is not widely studied as part of conventional (Western) medicine. Some of these products may be harmful if used improperly or without the direction of a trained practitioner. The essence of this entire elaborative exchange of information is to invite the scientific world to work for validation and re-glorification of Ayurveda as it has been previously started by many leading organisations of our country. With an appeal to more emphasis on herbo-mineral formulations of Ayurveda as every classic of Ayurveda maintains that herbo-mineral preparations are very safe and essential for the treatment of ailing humanity provided these are produced without compromising the fundamentals of the Ayurvedic pharmaceutical operations of *Shodhana* and *Marana*, specifically. With all energy, potency and wisdom of our ancient scholars, we submit that these groups of medicines are as superior as it was, even today. It is compromised in the fundamental pharmaceutical process with an unwarranted variation that is responsible for any side/ adverse effect of mineral and herbo-mineral formulations (Chaudhary and Singh, 2010).

Ayurveda experts in India believe that if *Bhasmas* are properly prepared according to ancient protocols, the metals undergo *shodhana*, rendering them nontoxic and therapeutic. The prevalence of metals in non-*Rasashastra* medicines was still substantial (17%) and could be a consequence of environmental contamination of the herbs or incidental contamination during manufacturing (Saper et al., 2008). Ayurveda advocates in India maintain that *Rasashastra* medicines have been used effectively and safely for millennia (Satpute, 2003). They describe case reports of metal toxicity to improper commercial manufacturing practices or lack of supervision from a practitioner skilled in *Rasashastra*. However, many Ayurvedic medicine users believed to be unaffected may actually have unrecognised, misdiagnosed, or subclinical metal intoxications. The patients with Ayurvedic medicine-associated

lead poisoning commonly undergo endoscopy for abdominal symptoms or bone marrow biopsy for anaemia before they receive a correct diagnosis.

There is need to thoroughly investigate the trace elements in Ayurvedic medicines not only at final stage but also during preparation through x-ray fluorescence spectroscopy and other techniques so that people can have more faith on this treasure of science. It is more important that Ayurvedic practitioners need to have in-depth knowledge and high moral value. Ayurvedic medicines are already being developed on a scientific basis with proof of quality control in research labs and this need to be encouraged. BGR-34 and IME-9 are good examples of such approach for treating diabetes. Only a few findings and verbal statements cannot let Ayurveda down in present scenario as this system of medicine has already been served humanity for a long past.

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