Chapter - 1

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1.0 Introduction

The knowledge of herbal medicine is getting prioritised now a day. Ayurveda revealed the medicinal importance of many plants both in form of raw materials as well as refined extracts. The concepts like Complementary and Alternative medicine (CAM) include use of herbal drugs in many parts of the world. In other hand CAM is defined as a replacement to the standard medical treatment. However it addresses many diseases which are not amenable to modern treatment method (Farnsworth and Soejarto, 1991; Dhall et al., 2006).

Emerging diseases due to microbial resistance lead to develop side effects and significant increase in treatment cost. Unavailability of appropriate remedial treatment procedure in numerous chronic diseases is the reason for global interest in alternative medicine (Humber JM, 2002). Ayurveda is proven to be the ancient traditional way of treatment in our country India, which is fully based on philosophical, experimental and practical concepts. It includes the use of indigenous drugs which has been preferred by many pharmaceutical industries towards a novel strategy for natural drug discovery (Seidl PR, 2002). Ayurvedic proven concepts signifies more on human health and disease that recommend the use of herbal enriched compounds as special diets. However, some herbal compounds may have toxicity besides their therapeutic potential if used improperly.

The word ‘Agadtantra’ is known as Toxicology in western medicine. Toxicology is known as the branch of science which involves in dealing poisons with a detail evaluation of the source of poison, its inherent properties, mode of action and observed symptoms. By which they determine lethal dose, nature of fatal results, treatment procedure, accurate detection & estimation method and results on autopsy test. Forensic toxicology signifies the medical and legal part of the harmful properties of poisonous substances on human body. A poison is termed as a substance which when orally administered, ingested or, inhaled would be capable of showing toxicity on human body. So it is known as almost anything may be
termed as poison. Medical science has proven that, there is a marginal difference between a medicine and a poison. Presence of medicine in a toxic dose is termed as a poison and the presence of a small quantity of poison in a small dose would be treated as medicine (Parikh DC, 2002). There are so many plants which are identified as poisonous and semipoisonous in ayurveda. Plants like Vatsanābha (Aconitum species), nux-vomica, Acorus calamus, Semecarpus anacardium, Strychnos Abrus precatorius etc., are the most known examples of toxic plants. These plants are known for their hidden medicinal values and broadly accepted by the medical fraternity. These plants are still used in Indian system of development of medicine for treatment. Aconite, strychnine, β–asarone, bhilawanols, abrin are known for presence of the toxic components in these plants and are highly toxic in nature. Semecarpus anacardium (SA) is one of the toxic and equally well-known plants recognized by Indian Ayurvedic system of medicine.

Bhallataka (Semecarpus anacardium Linn; Anacardiaceae) fruit is one of the upavishadravya (semi poisonous drugs) (Sharma et al., 2003). Its importance and utility is increasing day by day because of its therapeutic significance in many a diseases including cancer. Though the fruits of Bhallataka has many therapeutic values, pharmacies are scared to use this drug because of its irritant vesicating nature (Ramasastri and Shenolikar, 1974). The fruit contains tarry oil which causes contact dermatitis. Medically it is very well recognized as Urushiol induced contact dermatitis because the chemical Urushiol is responsible for dermatitis. If this vesicant nature is removed, the drug could be a good source for pharmaceutical industries in manufacturing many formulations containing Bhallataka as an ingredient.

The process in which specific substances are treated with advised matter by rubbing, steaming etc., so as to remove its harmful or toxic effects is known as Shodhanasanskara (purification process). Poisonous plants are subjected to shodhanasanskara (purification process), before its therapeutic use. This process reduces toxicity of poisonous plant considerably and keeps it at required optimum level. If juice of Bhallataka (even in traces) comes in contact with body, produces severe daha (burning sensation), and Vrana (ulcer). When it comes in contact with face, it produces acute burning sensation with shotha (inflammation) and Visarpa (skin disease).
Ayurveda advocates bhallataka after shodhana (purificatory procedures) (Ilanchezhian et al., 2010). Though there are different shodhana methods mentioned in Ayurveda, the shodhana method mentioned in the text Rasamrutam was adopted and quoted in (The Ayurvedic Pharmacopeia of India) (API) and the Ayurvedic formularly of India (AFD). The procedure is soaking the fruits in cow’s urine, cow’s milk and rubbing it in brick powder (Ilanchezhian et al., 2010). Shodhana is the purificatory measure used in Ayurveda to purify toxic medicinal plants (upavisha dravyas), by various pharmaceutical procedures like soaking, rubbing and washing etc. with specific medias like gomutra (cow’s urine), godugdha (cow’s milk) etc. Physico-chemical changes and reduction of the toxic chemicals from the poisonous plants like strychnine, brucine in kupila and scopoline in dhattura are reported already. Recent studies proved the changes of Rf values in shodhita samples of bhallataka when compared to raw bhallataka (Venkateshwarlu et al., 2010). Semecarpus anacardium has a history of growing rapidly in the Indian subcontinent particularly sub-Himalayan regions, tropical and central parts of India. It has been reported for wide arena of ethnopharmacological activities citing anticancer activity of immense importance. In the past, researchers have identified SA nuts extracts for potent anticarcinogenic potential (Mansoria et al., 2013; Raut et al., 2007 and Jain P, 2013). SA also possesses analgesic (Lingaraju et al., 2011), hypoglycaemic (Arul et al., 2004), hepatoprotective (Abirami et al., 2007), anthelmintic (Pal et al., 2008), anticancer (Sugapriya et al., 2008), neuroprotective (Farooq et al., 2007), anti-inflammatory (Sushma Y, 2013), antioxidant (Sahoo et al., 2008), antimicrobial (Sharma et al., 2002), antispermatogenic (Sharma et al., 2003), anti-atherogenic (Mary et al., 2003), hypolipidemic, hypocholesterolemic (Tripathi and Pandey, 2004), memory enhancing (Vinutha et al., 2007), cardioprotective (Asdaq and Chakraborty, 2010), aphrodisiac (Gupta et al., 2013) and antituberculosis activity (Singh et al., 2015).

However, thorough literature survey does not reveal the effect of Shodhana on different activities shown by SA. The present study was an attempt to evaluate the effect of shodhana on different pharmacological activities of SA. We have selected two potential activities like anticancer, some CNS activity and nootropic activity. The method recommended in (The Ayurvedic Pharmacopeia of India) (API) and the Ayurvedic formularly of India (AFD) was used for shodhana purpose. The effect of shodhana on toxic principle present in SA was also evaluated. Thus, the present study has been undertaken
with following objectives:

- To perform shodhana of nuts of *Semecarpus anacardium* Linn. following Ayurvedic Pharmacopoeia procedure.
- To study the effect of shodhana on toxicity profile of *Semecarpus anacardium* nuts
- To study the effect of shodhana on phytochemical profile of *Semecarpus anacardium* nuts
- To study the effect of shodhana on anticancer activity of *Semecarpus anacardium* nuts
- To study the effect of shodhana on nootropic activity of *Semecarpus anacardium* nuts.