CHAPTER 1

INTRODUCTION
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Chapter 1.1

*NATURAL PRODUCTS IN TRADITIONAL THERAPY*

Traditional system of medicine practiced in India use natural products for therapeutic purposes: plants, minerals and animal origin drugs. Medicinal plants, which constitute bulk of traditional material medica, have received considerable attention by researchers and funding agencies. The other two categories have relatively been neglected; even documentation of claims for mineral and animal origin drugs is not adequate. Original Sanskrit, Arabic and Persian sources are not easily accessible necessitating compendiums in English language. Said (1969); Vohora and Khan (1979) and Chopra and coworkers (1982) presented classified information on mineral and animal origin drugs. These are intended to stimulate interest among researchers towards these virgin areas. It is felt that effort in this direction might yield fruitful research.
Chapter 1.2

METALS AS THERAPEUTIC AGENTS

The Indian systems of medicine use several mineral preparations which include heavy metals. A lot of toxicity data and hazardous effects on environment have made health scientists afraid of heavy metals. This discussion, however, could easily make one forget, that starting with the monocellular microorganisms through the plant and animal world up to man, all living species are absolutely dependent on the presence of metal salts in their food in order to maintain their life and reproductive capacity. The first living cell probably developed in a Primeval soup which contained, in dissolved state, all elements in the earth's crust at that period (Merian 1991). With the renewed interest in the role of elements in health and disease during the last 2-3 decades, a more balanced approach is now discernible. A synthesis of ancient philosophical concepts with modern sciences has lead to the development of Medical Elementology as a new discipline in science. (Vohora 1984; Vohora and Dobrowolski 1990)

Essential functions of toxic elements are now being discovered e.g. Arsenic, which was considered as king of poisons, is now classified as a possibly essential element. However the evidence for its essentiality in man is not unequivocal. The myth of good and bad elements has exploded in recent-years. Today even such questions are being asked: whether we are getting enough arsenic in diet (Anke et al 1978; Frost 1980)? The studies carried out at the Department of Medical Elementology and Toxicology of Jamia Hamdard revealed interesting neuropsychobehavioural effects in silver preparations.
These include analgesic, antictaleptic, antifatigue and anxiolytic activities without appreciable gross or subtle toxic effects. (Ayesha et al 1997; 1999).
Chapter 1.3

CALCINED GOLD PREPARATIONS

Though gold has been used in the treatment of rheumatoid arthritis since 1929, it is not attributed with any other medicinal property in allopathy. The metal is, however, highly valued both in Ayurveda and Unani-Tibb for its tonic and rejuvenating properties. It is used in the form of calcined preparations in these systems of medicine. Two such preparations *Swarna Bhasma* in Ayurveda and *Kushta Tila Kalan* in Unani-Tibb are claimed to possess general tonic, hepatotonic, cardiostimulant, nervine tonic, aphrodisiac, detoxicant, anti-infective, rejuvenating and anti-ageing properties. Traditional calcination techniques are specialized processes wherein herbal juices are incorporated during the preparation of ash. The traditional physicians claim that these processes *purify* (detoxify?) the metal and make it therapeutically effective and safe (Kabeeruddin and Wahid 1922; Said 1969; Chopra et al 1982). These claims have not been validated. Leibfarth and Persellin (1981) reviewed the mechanism involved in the antimicrobial, anti-inflammatory and immunomodulating effects of gold and opined that since this metal can alter many biological systems, investigations on gold is a fruitful area of research. This, however, has not received due scientific attention.

Present study is aimed to fill this lacuna and embodies investigations on neuropsychopharmacological effects of indigenous gold preparations using a battery of 30 tests, including effects on gross behaviour, cognitive function, antidepressant, anxiolytic, neuroleptic and serenic activities. While anti-inflammatory and anti-arthritis
effects of gold preparations (e.g. gold sodium thiomalate, auranofin etc.) are well documented (Bloom et al 1988), no reports are available on the effects of calcined gold preparations on immune function. The use of gold compounds in modern systems of medicine is intended to suppress the overactivated immune functions in rheumatoid arthritis and other autoimmune disorders. The question whether this suppressive action is anyway modified in case of drugs of traditional systems remains to be answered. Hence immunomodulatory parameters were also included in the protocol.
Chapter 1.4

AIMS AND OBJECTIVES

1. To investigate some Ayurvedic, Unani and Allopathic gold preparations for their effects on behaviour, central nervous system, memory, endurance and non-specific resistance of the body.

2. To assess the modulatory role of gold preparations used in traditional system of medicine on various immunological parameters and compare them with modern gold preparations.

3. To study the rationale of their therapeutic action.

4. To study the safety aspects.