Chapter-3

Rationale of Study
3. Chapter-3, Rationale of Study, Aim and Objectives

3.1 Rationale of Study

Sleep is very much essential for humans or animals for their normal, healthy function and for nervous systems to work properly. GABA (Gamma Aminobutyric acid) is the principal anti-neurotransmitter in the central nervous system of all mammalian. It plays a key part in the control of neuronal fieriness by preventing or reducing certain nerve signals (Smith & Simpson, 2003). Sleep is necessary for normal, healthy function and for nervous systems to work properly.

The characteristic of an ideal sleep drug includes the improvement the sleep quality and quantity without considerable side effects so that overall daytime functioning would also increase. The currently available sleep drugs which are generally prescribed are not at all free from side effects and the adverse effects caused by them may lead to other diseases.

Drugs that increases the GABA level further reduces anxiety, causes anti-convulsive effects and soothing effects. GABA receptors have extensive therapeutic pharmacological effects including therapy of anxiety, sleep, depression and memory disorders. To produce targeted effect in sleep disorder the location of selective ionotropic GABA receptor agonist component is a major challenge in the progress of therapeutic drug acting targetly on GABA or GABAA receptors. Therefore, the research and development of novel sleep-promoting agents with ideal properties is ongoing.

Mostly people doesn’t want to rely upon these synthetic medicines available in market and inclination towards herbal medicines have increased as ayurvedic drugs are relatively less toxic and have very less or acceptable side effects. Looking at its benefits alternative medicines are more preferred than conventional Western medicines (Humber 2002). In Western countries, research on the neuronal effects of medicinal plants has been widely carried out, whereas in Asia, there are only few reports available on the hypnotic effects of Asian plants. The attendance has also been a growing towards demand for natural products with sleep promoting activity.

The objectives of this study were to find hypnotic plants as a source of new sleep drugs or aids from plant resources in India, and to demonstrate the sleep-promoting effects
and action mechanisms of hypnotic plant extracts.

Based on recent literature survey of these plants viz. *Valeriana jatamansi*, *Valeriana wallichii* DC, and *Withania somnifera* Linn were selected and they are widely used in the ayurvedic formulations for various CNS disorders and in the folkloric system of medicine. So, an attempt has been made to evaluate the role of these Ayurvedic plants in the treatment of sleep disorder and their effect on GABA-A receptor.

3.2 Aim and Objectives

**Aim**

To find the efficacy of selected herbs for Sleep Disorder

**Objectives**

- Selection of plants.
- To evaluate plant extracts for Sleep Disorder.
- To evaluate the effect of plant extracts on GABA-A receptor.