Chapter 3

PROBLEM AND HYPOTHESES
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Now-a-days, life has been so complicated that it is not possible for any person to remember all the things at a time and for a long time, such as important days of one’s life, phone numbers, appointments etc. In this era of competition even the students are overloaded and have to learn and remember a lot of material for their exams.

Owing to this problem not only the physical scientists and the pharmacists but also the psychologists have searched from a long time for such type of agents that are capable of enhancing or modulating memory. These types of discoveries could greatly benefit the patients who have memory related disorders such as amnesia, Alzheimer’s disease senile dementia. It is also possible that the normal population including students suffering from amnesia merely due to stress might benefit from the same.

It is evident from the discussion and studies reviewed in first two chapters that some chemicals do alter our memory. The effect of RNA, proteins, hormones and neurotransmitters on memory imply that there is an endogenous mechanism which modulates memory (Matthies, 1974, 1989; Gold et al., 1983; Messing et al., 1985; Meck and Church, 1985; Briley, 1990; Gowdon, 1992; Sharma, and Muhar, 1995; Sharma, Sharma, and Sharma, 1995; Izquierdo et al., 1997; Ardenghi et al., 1997;
Lattal and Abel, 2001; Dudai, 2002; Muller, Vianna, Medina, and Izquierdo, 2002).

Such studies turned the interest of scientists towards the nootropic drugs, whose main feature is to enhance learning and memory (Stahl, 1998, Balaraman adn Shingala, 2002). Some investigations indicate the direct positive effect of nootropics, like RGH-2716; EGb-761, CGP-36 742, aniracetam, piracetam on memory (Valzelli, et al., 1980; Gamzu, 1985; Arnsten and Goldman-Rakic, 1985; Bartolini et al., 1992; Lyketos et al., 1996; Maurer et al., 1998; Parcozai et al., 1998; Satyan et al., 1998).

The commonly used and researched nootropics are the chemical formulations that may be harmful (Bartus, et al., 1982). Therefore, in recent years, focus on plant research, has increased all over the world and a large body of evidence has been collected to show the immense potential of medicinal plants used in various traditional systems.

The World Health Organization (WHO) estimates that about 4 billion people of the world population currently use herbal medicines for their primary health in one or the other way (Vashishtt and Kumar, 2003).

A lot of memory, enhancing Ayurvedic medicines are also being marketed under the name of Brahmi, Jatamansi, Ashwagandha,
Shankhapushpi and so on. Brahmi is a popular memory enhancing herbal medicine. A lot of research has been conducted on Brahmi (Agrawal, Gupta, Dixit and Dubey, 1993; Agarwal, Pandey and Dubey, 1993; Dubey, Pathak and Gupta, 1994; Singh et al., 1997). A little work has been done on Ashwagandha, Jatamansi and Vacha, (Chaturvedi et al., 1966; Nadkarni, 1964). Another popular memory enhancer is Shankhapushpi. But very little work has been done on this herbal plant (Rakhit and Basu, 1958; Sharma et al., 1965; Sharma, 1966; Singh and Mehta, 1966; Chaturvedi et al., 1966; Mudgal et al., 1972; Mudgal, 1975). Therefore, it is the need of today to experimentally investigate the effect of Shankhapushpi on memory especially by using it directly on human beings.

Keeping the vide implications in mind it was thought worthwhile to investigate the following problem:

**Problem:**

To study the effect of Shankhapushpi (whole plant) on memory.

**Objectives:**

1. To verify the effect of Shankhapushpi.
2. To verify the effect of varied durations of Shankhapushpi (whole plant) on memory.
3. To test the residual effect of these varied doses of Shankhapushpi on memory, after a gap of one and two months (This would be done only if the second objective proves).

**Hypotheses:**

To achieve these objectives following hypotheses were formulated in the light of the above discussion and the studies reviewed earlier:

1. The Shankhapushpi would enhance memory.
2. Longer the duration of administration of Shankhapushpi more the enhancement of memory.
3. There would be a linear relationship between the memory enhancement and duration of administration of Shankhapushpi.
4. The longer the duration of administration of Shankhapushpi, more would be the residual effect.