Study Material
Kingdom : Plantae
Phylum : Magnoliophyta
Class : Magnoliopsida
Subclass : Asteridae
Order : Scrophulariales
Family : Scrophulariaceae
Genus : Bacopa
Species : monniera
Bacopa monniera (Linn.) (syn: Lysimachia monniera; Monniera cuneifolia; Herpestis monniera) belongs to the Scrophulariaceae family and is commonly known as “Brahmi” (Chunekar 1960). The genus Bacopa includes over 100 species and is distributed widely in the tropical regions of the world (Barrett & Strother 1978). B. monniera is a small creeping herb with numerous branches, stems are prostrate, succulent and herbaceous with the length of 10 to 30 cm. Leaves are fleshy with 0.5-2.5 cm long and 0.2-1 cm wide, arranged opposite to each other on the stem (Chunekar 1960; Satyavati et al. 1976). Flowers (0.6-3.2 cm long) are solitary and the colour ranging from white to pale blue or violet, radially symmetrical, borne in leaf axils on slender pedicels. Fruits (5mm long) are ovoid, acute, included in the persistant calyx and seeds are oblong with pale-brown coloured (Mathew 1984). B. monniera known to grow under different soil and climate conditions but optimal temperature is 30-40 °C and humidity is 65-80% (Ghosh et al. 2008). It is commonly found throughout Indian subcontinents, Nepal, Sri Lanka, China, Taiwan, Vietnam, and also found in Florida, Hawaii and other southern states of United States of America.

B. monniera has been classified under medhya rasayana, i.e., medicinal plants rejuvenating intellect and memory (medhya). The ancient classical Ayurvedic treatises, viz., Charak samhita (6th century A.D.), Susrutu samhita, and Astanga hrdaya, have prescribed B. monniera to improve memory, intelligence, and general performance (Rai et al. 2003; Russo & Borrelli 2005). B. monniera contains many active compounds which are: alkaloids (brahmine and herpestone), saponins (d-mannitol and hersaponin, acid A, and monnierin), and flavonoids (luteolin and apigenin) (Bose & Bose 1931; Chopra et al. 1956; Sastri et al. 1959). The principle components responsible for memory enhancing effect are bacoside A and bacoside B (Chatterji et al. 1963; 1965).
In addition, betulic acid, stigmasterol, beta-sitosterol, bacopaside I, II, III, IV, V, X, N1, N2 and bacopasaponin A, B, C, D, E, F and G were identified (Garay et al. 1996a, b; Chakravarty et al. 2001; 2003; Hou et al. 2002). Several reports have authenticated the traditional cognitive-enhancing property of *B. monniera* in different animal models (Singh et al. 1988; Singh & Dhawan 1982; 1992; 1997). The lethal dose (LD$_{50}$) of alcoholic crude extract of *B. monniera* given orally was 17 g/kg and aqueous extract at a dose of 5 g/kg did not showed any toxicity. The LD$_{50}$ of aqueous and alcoholic crude extract of *B. monniera* in rat is 1000 mg/kg and 15 g/kg by intraperitoneal route (Martis et al. 1992). Pharmacological and toxicological studies demonstrate that *B. monniera* is well tolerated without any side effects (Singh & Dhawan 1997; Russo & Borrelli 2005). In this study, Wistar rat’s (*Rattus norvegicus*) were used as study animal to gain insight into the effect of *B. monniera* leaf extract on learning and memory. All animal experiments were performed under the guidelines of Institutional Animal Ethics Committee (IAEC/BDU/13/2009-10), Bharathidasan University, Tiruchirappalli and adequate measures were taken to minimize pain or discomfort with animal experimental procedure.