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Exploration, collection, morphological and biochemical evaluation of brahmi (*Bacopa monniera* wettst.)

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SUMMARY

Twenty-nine accessions of *Bacopa monniera* collected from different eco-geographical locations were examined for genetic variability carried in them. The accessions were grown in pots, arranged in completely random block design, replicated twice, and observed for eight quantitative characters and bacoside-A content in the herbage. All the accessions were distinctly different irrespective of the geographical locations from where they were collected. The accessions were grouped into five clusters and the accessions showed no parallelism between clusters and geographical distribution. The bacoside-A content of the herbage was found to be low in the accessions possessing high internodal length and more number of flowers. Positive correlations for bacoside content was observed with shoot length, leaf length, leaf width, leaf area and biomass. The accessions, which flowered late, had good bacoside-A content. The accessions collected from Ernakulam district recorded good bacoside content when compared to accessions from other districts. The accession from Delhi recorded very trace amount of bacoside-A content. Bacoside content and biomass, which are very important for ayurvedic practioners had high heritabilities indicating the consistency of these two irrespective of the effect of the environment. It can be inferred that both the gross agroclimatic environment of the region and microenvironment in the vicinity of the water bodies where *Bacopa monniera* genotypes occur will regulate its growth and the content of bacoside-A.

Key words : Brahmi

The medicinal plant *Bacopa monniera*, commonly called Brahmi or water hyssop, predominantely used in ayurveda, a holistic system of medicine originating from India. *Bacopa monniera* is also known as *Gratiola monniera*, *Herpestis monniera* and *Moniera cuncifolia* (Family Scrophulariaceae). It has been classified and medharasayana i.e medicinal plant, rejuvenating intellect and memory (Hule and Juvekar 2009). It is profusely branched herb with white to violet coloured flowers whose populations spread both vegetatively and by seeds near river banks, ditches (Shalini *et al*., 2003, Jha *et al.*, 2005). Traditionally *Bacopa* was used as brain tonic to enhance memory, used in insanity, epilepsy, hysteria, blood cleanser and in treating inflammations , chronic skin diseases, high fevers, hair loss and high/low blood pressure (Chopra *et al.*, 1956; Sharan and Khare, 1991; Khann and Ahamed, 1992; Moharana and Moharana, 1994; Dar and Channa, 1997). Extracts of *Bacopa* possess a significant anticholinestease and antidementic properties useful in treating of dementia (Shanker *et al.*, 2002) leprosy, anemia, epilepsy and has anti cancerous activity (Shanmugasundaram *et al.*, 1991; Singh and Dhawan 1997) and anti oxidant properties (Elangovan *et al.*, 1995).

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MATERIALS AND METHODS

Accessions of brahmi (*Bacopa monniera*) were collected from different geographical locations of Kerala and these accessions were raised in pots filled with potting mixture. Transplanting of cuttings in the pots was done on 15th October, 2005. A total of 28 accessions were collected from Kerala and one was obtained from Delhi (Table 1). These accessions were replicated twice in Randomized Block Design (RBD). Each pot was planted with three cuttings of 10cm long of the same accession with 10cm distance between them (triangular fashion). All the accessions were initially observed to record the morphological characters. After flowering the accessions were harvested and the harvested material was shade dried for using in biochemical analysis.

Qualitative characters:

The 29 accessions of brahmi were critically observed at different growth stages to note the following morphological variabilities. The morphological characters noted were shoot length, leaf length, leaf width, leaf area,