



## RESEARCH PAPER

# Analysis of viability of using hydroponics in cultivation of medicinal herb Brahmi (*Bacopa Monnieri* L. west)

Monika Sharma\*, A.C. Raghuvanshi, Pragya Singh and G. Tejovathi  
V.I.S.M. College, Gwalior (M.P.) India (Email: [Sharma2107monika@gmail.com](mailto:Sharma2107monika@gmail.com))

**Abstract :** Brahmi (*Bacopa monnieri* L. west) is a 7<sup>th</sup> important & highly endangered medicinal plant of India. Market size is forecasted to reach \$320 million by 2026. Conventional production, takes 3-4 months for harvesting, is highly influenced by environmental conditions. Hydroponic is an ancient method of growing plants in soil less system with roots submerged in water with mineral nutrients and dissolved Oxygen (DO). By providing proper nutrients and controlled environmental conditions, large population of plants can be grown in relatively small area & all through the year. Thus, we can obtain optimum production rapidly as compared to conventional farming. So, present study is aimed to identify suitable nutrient and environmental conditions for brahmi commercial cultivation in hydroponic system. Experiments were carried out with 5 to 6 twigs of 5-8cm long / net pots in four hydroponic systems (NFT, DFT, DWC and vertical) with inert supporting materials ( clay bubbles, cocopeat and foam). Hogland, NPK, Grow Micro Bloom, plant decomposed extracts and Syngenta fertilizer were used as nutrients. Environmental parameters, temperature, pH, DO, EC and TDS were tested at three (high, control, low) levels. Shoot and root lengths; fresh and dry weights were measured after 45 days from 7-10 samples from all repeats /experiment. Data was pooled and mean and SE was calculated. Brahmi growth was observed to be high in NFT system followed by DFT system with cocopeat as physical support system. According to shoot root length and fresh and dry weight, Syngenta fertilizer found to be a suitable nutrient. While in physical conditions temperature (35-45°C), pH (6.1-6.5), DO (4.0-4.4mg/l), EC (1.8-2.2 ms/cm) and TDS (500-600 ppm) and found to be suitable for optimum brahmi production in NFT system with cocopeat and Syngenta as nutrient. Thus, Hydroponics is a suitable method of cultivation of herbaceous medicinal plants like brahmi. Under controlled environmental conditions with suitable nutrients supply, optimum production can be achieved in relatively short time than the conventional farming.

**Key Words :** Hydroponics in cultivation, Medicinal herb Brahmi

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\*Author for correspondence :

<sup>1</sup>S.M.S. Model Science College, Gwalior (M.P.) India