Increased Bacoside content in Brahmi (Bacopamonnieri) by the aqueous seed coat extract of Tamarindusindica – Scientific validation of indigenous traditional knowledge

Rahul Bose*[1], Ekta Bhattacharya[2], and Suparna Mandal Biswas†[3]

[1]Indian Statistical Institute (ISI) – 203,BT road,Kolkata-700108, India
[2]Junior Research Fellow (JRF) – Indian Statistical Institute, Kolkata, West Bengal, India
[3]Agricultural Ecological Research Unit, Indian Statistical Institute (ISI) – 203, B. T. Road, Kolkata, West Bengal, India

Abstract

Bio-fertilizers are one of the best efficient, ecofriendlytools in our agricultural field as a replacement to our conventional chemical fertilizers. Use of aqueous tamarind seed coat extract (TSCE) as biofertilizers in rice and vegetable cultivation is an age-old practice in Indian tribal culture. But no scientific validation has been performed on this indigenous traditional knowledge. In the present research work, our main objective is to study the role of TSCEas biofertilizer, one of the most valuable plant Brahmi,*Bacopamonnieri* (L) Wettst.Bacopa is considered to be a "medhyarasayana", an herb that sharpens the mind and the intellect and also an important ingredient in many Ayurvedic herbal formulations designed to treat conditions such as memory loss, anxiety, poor cognition and loss of concentration. TSCE was prepared in each set by soaking 50gms of seeds in 250ml of water for 5-7days. This constitute the standard or stock solution of 1:5 dilution from which further dilution 1:10 and 1:20 were made. Effects of aqueous TSCE at different concentration namely 1:5, 1:10 and 1:20 were tested on *Bacopamonnieri*. TSCE showed maximum stimulatory activity at 1: 20 dilutions than in 1: 10 dilutions whereas 1:5 dilution exhibited negative activity and after three weeks of application it turned to completely dry at this applied concentration. At 1:20 dilutions, length and breadth of the bacopa leaf increased 76.46% and 37%, whereas it is 23.53% and 12.5%respectively in 1:10 dilution. Biochemical analysis namely phenolics, flavonoids, tannins and antioxidant activities were also revealed to show increasevalue in 1: 20 and 1:10 dilutions compared to that of control. Our experimental results indicated that TSCE at 1: 20 and 1: 10 may be used as a biofertilizers which function as key player in sustainable agriculture by improving soil fertility, plant tolerance and crop productivity.

Keywords: Brahmi (Bacopa monnieri), Biofertilizers, Tamarind seed coat extract, Bacoside

*Speaker
†Corresponding author: mondalsupa@gmail.com