

2nd International Conference on **Agricultural & Horticultural Sciences**

Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

Growth and yield performance of bush beans (*Lablab purpurium* var. Typical.) under varying levels irrigation and fertigation of N and K

Saileela K, Kadasiddappa Malamasuri and Sachin Himmatrao Malve
Acharya N. G. Ranga Agricultural University, India

The field experiment was conducted at Water Technology Centre, Collage farm, College of Agriculture, Rajendranagar, Hyderabad during *Rabi* season 2009-10 to study effect of varying fertigation (Nitrogen and Potash kg ha⁻¹) levels on growth and yield performance of bush bean (*Lablab purpurium* var. typical.) through drip irrigation. The result revealed that drip irrigation water scheduling at 100% Epan recorded maximum plant height (39.4cm), dry matter production (3225 kg ha⁻¹), leaf area index (1.51) and yield (3556 kg ha⁻¹) recorded 14.6%, 12.4%, 11.4% and 13.1% respectively higher yield compared to surface irrigation level at IW/CPE=1. The growth parameters, yield attributing characters and green pod yield of bush bean increased with increment in fertigation levels irrespective of irrigation method of either drip or surface irrigation. However, these parameters recorded significantly higher when fertigation was given with 100:100 N and K kg ha⁻¹.

Biography

Saileela K has completed her M.Sc (Agri.) from Acharya N. G. Ranga Agricultural University (ANGRAU) and presently pursuing Ph.D. in Dept. of Agronomy, College of Agriculture, Rajendranagar, ANGRAU, Hyderabad, Andhra Pradesh.

saileela838@gmail.com

The elevated production of spilanthol from *in vitro* cultures of *Spilanthes acmella* Murr. by optimization of media constituents via response surface methodology

Radhika Rajendran and Rakhi Chaturvedi
Indian Institute of Technology Guwahati, India

Spilanthol, an N-alkylamide, was screened and quantified from *in vitro* dedifferentiated calli, obtained from leaf explants of *Spilanthes acmella* Murr. The spilanthol possess vast medicinal values in folklore remedies, like antiseptic, analgesic, anti-inflammatory, anti-malarial activities.

To optimize its higher level of production, five media constituents, such as Murashige & Skoog (MS) major salts, sucrose, N⁶-benzylaminopurine (BAP), 2,4-dichlorophenoxyacetic acid (2,4-D) and α -naphthalene acetic acid (NAA) were chosen to screen the spilanthol. The optimization study was performed by using statistical techniques of Response Surface Methodology (RSM) and Plackett-Burman. Plackett-Burman design screened four factors amongst the selected variables which were considered to be the significant factors for optimization using Central Composite Design falling under RSM, to determine the relationship between factors and responses on high yield of spilanthol. The Analysis of Variance (ANOVA) provided the correlation coefficient (R²) value of 99.22% which was best fitting to the second-order polynomial model. The four media constituent-1½ times MS major salts, sucrose (5%), BAP (4.82 μ M) and 2,4-D (1.8 μ M) - significantly affected spilanthol production with maximum yield of about 2.81 mg/g DW of callus. Compared to this, the spilanthol production in control (non-optimized) medium was 1.75 mg/g DW of callus. The statistical model could explain the influence of factors with 95% confidence limits on the respective responses.

Biography

Radhika Rajendran has completed her BTech in Biotechnology from Tamil Nadu Agriculture University (TNAU), Coimbatore. Currently, she is pursuing Ph.D. in Plant Biotechnology area under the supervision of Dr. Rakhi Chaturvedi at Department of Biotechnology, Indian Institute of Technology Guwahati, Guwahati, India.

radhika@iitg.ernet.in