

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

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

Effect of rhizobium inoculation with different levels of nitrogen on performance of *Albizia procera* (*Safed siris*) seedlings

Smriti Kolhey, Rakesh Patel, D Dash, T Chowdhury and S B Gupta
Indira Gandhi Krishi Vishwavidyala, India

A polybag experiment was conducted in glass house of Department of Agricultural Microbiology, College of Agriculture, Raipur, Chhattisgarh with eight treatments replicated thrice to assess the impact of *Rhizobium* inoculation on performance of *Albizia procera* (*Safed siris*) and influence of nitrogen on biological nitrogen fixation. The treatments comprised of seedling root inoculation with *A. procera* - *Rhizobium* alone and along with 3 levels of N fertilization (N_1 , N_2 and N_3 as 50 mg, 150 mg and 400 mg N/seedling) and application of 3 levels of N alone including one control. It was observed that the plants treated with both Rhizobium and low level of nitrogen (150 mg/seedling) performed better than those, which received either one of them or none (control). Growth and biomass production of *Albizia procera* was found maximum in T_4 with shoot length (25.92 cm), root length (46.23 cm), collar diameter (4.01 cm) and total dry weight (10.965 g/seedling) at 120 DAT. Stunted growth and poor biomass production of *Albizia procera*-*Rhizobium* was observed when high level of urea 400 mg/seedling was applied. Based on results it can be inferred that application of N fertilizer at the rate of 150 mg/seedling along with Rhizobium inoculation has tremendous potential in improving initial growth response of *Albizia procera* plants in nursery. This finding may be helpful in producing quality planting stock of *Albizia procera* for afforestation programs.

Biography

Smriti Kolhey completed her BSc from SGCARS Jagdalpur and M.Sc. from College of Agriculture, Raipur from the Indra Gandhi Krishi Vishwavidyala, Raipur. In Master's Degree her subject was Agricultural Microbiology and has done her research work on forest legume tree sp. *Albizia procera*. She has published her abstracts in National Seminar and Conferences. She got a place in "Junior technical assistant" (Feb 2012) in Chhattisgarh State Civil Supply Corporation Ltd., "Rural Agriculture Extension Officer" (April 2012) by office of Zonal Director of Agriculture, Bilaspur division, Bilaspur (C.G.) and "Rural Agriculture Extension Officer" (May 2012) by office of Zonal Director of Agriculture, Raipur division, Raipur (C.G.).

smriti.4july@gmail.com

Mathematical modeling of growth of amylolytic lactic acid bacterial strain *Enterococcus durans* Afm50

M Karthikadevi and K Vijila
Tamil Nadu Agricultural University, India

The growth models such as Gompertz, Logistic and Richards models were used to describe the growth pattern of amylolytic lactic acid bacterial (LAB) strain *Enterococcus durans* Afm50 which originally isolated from fermented finger millet. From these three models, the one giving the best fit is determined by showing the least value for residual sum of squares. The result revealed that Gompertz model was found to be the best fit for the growth of amylolytic LAB strain *E. durans* Afm50. From this model, it was observed that the lag phase started right after inoculation and rested for 4 h. After 4 h, the exponential phase was observed till 24 h and stationary phase of the strain remained viable until the 48 h. Furthermore, growth kinetic parameters of amylolytic LAB strain *E. durans* Afm50 grown in glucose - MRS broth and in starch - MRS broth were analyzed by deriving the values from Gompertz model and fitted into the modified Gompertz model. It was found that the strain registered 4.58 h of lag phase time in starch - MRS broth but in glucose - MRS broth it recorded 2.30 h. The strain grown in glucose - MRS broth had the maximum specific growth rate of 0.68 generation h^{-1} while in starch - MRS broth, the strain exhibited 0.43 generation h^{-1} . Moreover, the strain attained highest population density in glucose - MRS broth at 48 h of incubation time. In conclusion, the amylolytic LAB strain *E. durans* Afm50 utilized glucose as preferential carbon source rather than starch in the MRS broth.

Biography

M Karthikadevi is doing her Ph.D. (Agricultural Microbiology) in Tamil Nadu Agricultural University, Coimbatore. She is working on lactic acid bacteria in cereal based functional food formulations.

karthi.wonders@gmail.com