

GOD IS

# **1<sup>st</sup> International Society BioTechnology Conference**

Special Issue of “**Research Journal of BioTechnology**”



**Book of Proceedings & Abstracts**

# **ISBT-2008**

**28<sup>th</sup> to 30<sup>th</sup> December 2008**

Venue:

**Sikkim Manipal Institute of Technology,  
Majitar, Gangtok, Sikkim, INDIA**

Organized by

**Research Journal of BioTechnology and  
Sikkim Manipal University**

**Sponsored by Department of Science & Technology, Govt. of India**

Editor-in-Chief & Chairman - **Dr. S.L. Gargh**; Secretary - **Dr. Ajeya Jha**

**GOD IS**

Govt. of India Registration No.: MPENG/2006/18426

ISSN NO.: 0973-6263

## **RESEARCH JOURNAL OF BIOTECHNOLOGY**

An International Peer Reviewed Research Journal of Biotechnology, Nanotechnology, Bio & Agricultural Sciences  
*Res. J. Biotech., Special Issue, Pages 1-474, December 2008*

(Recognized and Approved by Chemical Abstracts, SCIE and Biotechnology Citation Index)

Website: [www.chemenviron.org](http://www.chemenviron.org)

E-mail: [biotek@chemenviron.org](mailto:biotek@chemenviron.org)

# **1<sup>st</sup> International Society BioTechnology Conference**



**Book of Proceedings & Abstracts**

# **ISBT-2008**

**28<sup>th</sup> to 30<sup>th</sup> December 2008**

Venue: **Sikkim Manipal Institute of Technology,  
Majitar, Gangtok, Sikkim, INDIA**

Organized by  
**Research Journal of BioTechnology  
Sikkim Manipal University**

**Sponsored by Department of Science & Technology, Govt. of India**

**Editor-in-Chief & Chairman - Dr. S.L. Gargh; Secretary - Dr. Ajeya Jha**

A.K.M. Fahmidul Haque

## Evaluation of a Commercially Available Probiotic on Height, Flowering and Fruiting of Capsicum (*Capsicum frutescens*) and Okra (*Abelmoschus esculentus*)

A.K.M. Fahmidul Haque\*, Israt Jahan Mukti, Syed Zafar Sadeque, Md. Ariful Haque Mollik and Mohammed Rahmatullah

Faculty of Life Sciences, University of Development Alternative, Dhanmondi, Dhaka, BANGLADESH

\*fahmidulhaque@yahoo.com

### Abstract

Excessive use of chemical fertilizers coupled with soil erosion has led to degradation of soil conditions in many agricultural regions of Bangladesh. Towards minimizing soil degradation, the use of probiotic (mixture of beneficial organisms) during cultivation of commercial crops is steadily gaining popularity amongst the cultivators. One of the probiotics in use is EX-M, manufactured in Thailand and containing according to the manufacturer's label a mixture of oxygenic photosynthetic organisms, lactic acid bacteria, nitrogen fixing bacteria, yeasts and Bacillus. One advantage of this probiotic is that the stock solution can easily be cultured in water containing 5% molasses and can be done by farmers in rural areas in drum-like containers. We evaluated the effect of application of EX-M on growth, flowering and fruiting of two commercial crops of Bangladesh, namely capsicum and okra. Plantlets were obtained from seeds and individual plantlets (about 3 inches in height) were transplanted to individual pots containing a mixture of garden soil and compost in the ratio of 4:1. Secondary cultures of stock solution of EX-M were grown for 72h at room temperature and applied to plantlets at the rate of 0-50 ml culture solution per plantlet per day. Preliminary experiments indicated that the best results were obtained following probiotic culture solution application at the rate of 20 ml per plantlet for 5 days per week, and thereafter all experiments were done under this condition. Individual pots containing plantlets were randomly distributed in open air conditions and plantlets grown in absence of probiotic (control) or presence of probiotic (experimental). For capsicum, probiotic treatment continued from Day 7 till Day 54 of plantation of individual plantlets; for okra, probiotic treatment was done from Day 13 till Day 47 of plantation of individual plantlets. Growth, flowering and fruiting were monitored for 103 days following plantation. The results are expressed as mean  $\pm$  SEM and statistically analyzed for significance. For capsicum, 36.3  $\pm$  3.0 days were observed for first flowering in control plants versus 28.0  $\pm$  2.6 days in experimental plants, which was significantly lower. The height of capsicum plants in control pots (39.1  $\pm$  1.7 cm) was lower than experimental plants (43.1  $\pm$  1.2 cm). The number of flowers per plant observed during 103 days of cultivation in experimental plants was significantly greater than control plants, being 77.3  $\pm$  1.4 and 64.8  $\pm$  2.2, respectively. With okra, initial flowering in control plants was observed at 44.3  $\pm$  0.8 days versus 40.0  $\pm$  1.5 days in probiotic-applied plants. The height of probiotic-applied okra plants was significantly greater than control plants (being 137.6  $\pm$  5.7 and 124.8  $\pm$  6.1 cm, respectively). Probiotic-applied okra plants also showed significantly higher fruiting per plant (27.8  $\pm$  0.8) versus control plants (20.3  $\pm$  1.3). Taken together, the results suggest that application of the probiotic was beneficial for two important crops, namely capsicum and okra in terms of obtaining significantly greater height, flowering or fruiting per plant as well as reducing the number of days for first flowering.

K. Ammani

## Isolation and Quantification of Glomalin from A.N.U. Soil

V.L. Swapna and K. Ammani

Department of Microbiology, Acharya Nagarjuna University, Guntur, INDIA

### Abstract

Arbuscular mycorrhizal fungi are ancient microorganisms that evolved with plant to aid in acquiring nutrients, especially immobile nutrients like phosphorous. AM fungal hyphae produce a sticky novel protein, Glomalin that helps in conglomeration of soil. It also helps in carbon storage, stability against wind and erosion and storage of nutrients near microsites of the roots.

The soil samples are collected from two different sites in the University campus (Garden and Chemistry dept). Isolation of the protein is done by Pressure cooker method. The protein isolated appeared as pale yellow colour. Estimation of the glomalin protein was done by Bradford protein assay. After estimation it was found the concentration of protein at Garden soil is 3 mg/ml and at Chemistry department soil it is 2 mg/ml.