

A Review on Contributions Presented at the BioMicroWorld2009 Conference

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Abstract: BioMicroWorld2009 Conference provides a multi-disciplinary forum bringing together those involved in microbiology from both applied and research communities to present current science and also to discuss and synthesize research priorities and directions for the future. It was the 3rd international conference on environmental, industrial and applied biology. The conference brought together more than 600 researchers from about 54 countries involved in microbiology, from both applied and research communities, to identify new approaches and research opportunities in applied microbiology presenting works which linked microbiology with research areas usually related with other scientific and engineering disciplines, as well as to consolidate international collaborative efforts and communicate current research priorities and progress in the field. Biomicro world 2009 conference ended this meeting by concluded that the use of microbes to reduce pollutants and industrial wastes and to change towards a less resource consuming society is being given considerable importance nowadays. New applications of beneficial microorganisms, working for the conservation of soil fertility, the control of plagues and diseases, and the improvement of agricultural productive processes and food industry, are required more and more in the mainframe of an environmental friendly agriculture and society. And science and technology emerging from microbiology research can help meet these challenges.

Key words: Research communities, synthesize research, collaborative efforts

INTRODUCTION

Main areas of interest in Biomicro world 2009 conference which were to explore, Agriculture, Soil, Forest Microbiology Analytical and Imaging Techniques. Microscopy, Environmental, Marine, Aquatic Microbiology. Geomicrobiology, Food Microbiology, Industrial Microbiology-Future Bioindustries, Medical Microbiology-Pharmaceutical Microbiology, Methods- Quantitative Models and Bioinformatics in Microbiology, Microbial Physiology, Metabolism and Gene Expression.

The efficiency of *Trichoderma harzianum* and *Aneurinobacillus migulanus* in the control of Gladiolus corm rot in soilless culture system, (Walid *et al.*, 2010). This study evaluates the efficiency of both antagonists against corm rot caused by the fungal pathogen *Fusarium oxysporum* f. sp. *Gladioli*, what is a serious problem in gladiolus production, causing huge financial losses to growers. Chitinolytic Bacteria Isolated from Chili Rhizosphere: Chitinase Characterization and Its Application as Biocontrol for whitefly (*Bemisia tabaci* Genn.), (Mubarik *et al.*, 2010). This research was conducted to screen chitinolytic rhizobacteria isolated from

rhizosphere of chilli pepper and to determine their chitinase activity in degrading chitin (a common constituent of insect exoskeleton) of whitefly, which is an important pest on many crops. Use of a Mixture of Thermophilic Enzymes Produced by the Fungus *Thermoascus aurantiacus* to Enhance the Enzymatic Hydrolysis of the Sugarcane Bagasse Cellulose, (Monte *et al.*, 2010) The present study focuses on the effect of different culture conditions on production of cellulases and hemicellulases by *T. aurantiacus*. It is also provides a possible application of *T. aurantiacus* enzymes in the degradation of sugarcane bagasse pulp, considering that this thermophilic fungus is a potential source of thermostable enzymes. Glomalin production and microbial activity in soils impacted by gypsum mining in the semiarid of Pernambuco, (Mergulhao *et al.*, 2010). This study study the environmental impact produced by the gypsum mining activity in the microbial biomass, the total enzymatic activity and production of glomalin, which can be a useful indicator of soil disturbance. New antifungal bacteriocin-synthesizing strains of *Lactococcus lactis* ssp. *lactis* as the perspective biopreservatives for protection of raw smoked

sausages, (Stoyanova *et al.*, 2010). In this study, it was performed a screening of effective antifungal strains from milk and dairy products and also powerful drinks of mixed lactic acid and alcoholic fermentation, evaluating the effects of the treatment of raw smoked sausages with cultural broth of the strains *L. lactis ssp. lactis* 194 and K-205 against food-born pathogens included fungi. Bioaugmentative Approaches for Dairy Wastewater Treatment, (Schneider *et al.*,). This study deals with the challenge to achieve high effectiveness of wastewater treatment process in two modules: anaerobic treatment process for dairy wastewater in broadly spread sequencing batch bioreactor with fixed biomass, and self-purification processes in a water receiver for partially treated dairy wastewater. Genetic and Biochemical Aspects of Ectoine Biosynthesis in Moderately Halophilic and Halotolerant Methylotrophic Bacteria, (Khmelenina *et al.*, 2010).

This study evaluates genetics and enzymatic aspects of the ectoine biosynthesis pathway in aerobic methylotrophic bacteria. Ectoine and its hydroxylated derivative, hydroxyectoine, are powerful multifunctional bioprotectants that defend against a variety of damaging factors such as heating, freezing, desiccation and UV radiation. Both compounds are widely used in medicine and cosmetics as brought-range stabilizers.

We hope readers will find this issue interesting and helpful to their research.

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REFERENCES

Khmelenina, V.N., I.I. Mustakhimov, A.S. Reshetnikov, M.G. Kalyuzhnaya and Y.A. Trotsenko, 2010. Genetic and biochemical aspects of ectoine biosynthesis in moderately halophilic and halotolerant methylotrophic bacteria. Am. J. Agric. Biol. Sci., 5: 446-458. DOI: 10.3844/ajabssp.2010.446.458

- Mergulhao, A.C.E.S., H.A. Burity, F.S.B. da Silva, S.V. Pereira and L.C. Maia, 2010. Glomalin production and microbial activity in soils impacted by gypsum mining in the semiarid of pernambuco. Am. J. Agric. Biol. Sci., 5: 422-429. DOI: 10.3844/ajabssp.2010.422.429
- Monte, J.R., W. Carvalho and A.M.F. Milagres, 2010. Use of a mixture of thermophilic enzymes produced by the fungus *thermoascus aurantiacus* to enhance the enzymatic hydrolysis of the sugarcane bagasse cellulose. Am. J. Agric. Biol. Sci., 5: 468-476. DOI: 10.3844/ajabssp.2010.468.476
- Mubarik, N.R., I. Mahagiani, A. Anindyaputri, S. Santoso and I. Rusmana, 2010. Chitinolytic bacteria isolated from chili rhizosphere: Chitinase characterization and its application as biocontrol for whitefly (*bemisia tabaci* genn.) Am. J. Agric. Biol. Sci., 5: 430-435. DOI: 10.3844/ajabssp.2010.430.435
- Walid, N., M. Jim and W. Steve, 2010 The efficiency of *Trichoderma harzianum* and *Aneurinobacillus migulanus* in the control of Gladiolus corm rot in soilless culture system. Am. J. Agric. Biol. Sci., 5: 436-445. DOI: 10.3844/ajabssp.2010.436.445
- Schneider, I. *et al.* Bioaugmentative Approaches for Dairy Wastewater Treatment. Am. J. Agric. Biol. Sci., 5: 459-467. DOI: 10.3844/ajabssp.2010.459.467
- Stoyanova, L.G., E.A. Ustyugova, T.D. Sultimova, E.N. Bilanenko and G.B Fedorova *et al.*, 2010. New antifungal bacteriocin-synthesizing strains of *Lactococcus lactis ssp. lactis* as the perspective biopreservatives for protection of raw smoked sausages. Am. J. Agric. Biol. Sci., 5: 477-485. DOI: 10.3844/ajabssp.2010.477.485