BOOK OF ABSTRACTS

INTERNATIONAL CONFERENCE on CONSERVING BIODIVERSITY FOR SUSTAINABLE DEVELOPMENT

INCCBSD 2013

(Supported by **TEQIP II**)

16th to 18th AUGUST, 2013

Page - 25

Page 25

Organized by

Department of Biotechnology and Medical Engineering

NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA, ODISHA, INDIA

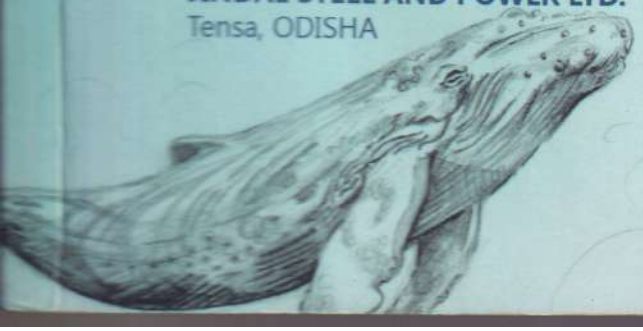
In Association with

POSTGRADUATE INSTITUTE OF SCIENCE
UNIVERSITY OF PERADENIYA,
SRI LANKA

CAFET-INNOVA Technical Society
Hyderabad, INDIA

JINDAL STEEL AND POWER LTD.
Tensa, ODISHA

TUBED COAL MINES PVT. LTD.
Latehar, JHARKHAND



using meristem culture, embryo culture, *in vitro* shoot multiplication, clonal propagation, conservation of somatic embryos, production of synthetic seeds and cryo preservation. The experimental investigations have been carried out for conservation of germplasm of wild and cultivated varieties of certain grain Legumes using *in vitro* techniques on solidified MS medium with special reference to Viability, seed germination, seedling vigor and filed seedling survival percentage etc.

BCS 103

Use of green technologies for conserving biodiversity and sustainable farming: A success story

Dr. P. Kamalasanan Pillai, S. Premalatha and S. Rajamony
Vivekananda Kendra – NARDEP, Kanyakumari – 629702
Ph:04652 – 246296, vknardep@gmail.com

The yield-oriented capital-intensive chemical agriculture has resulted in serious environmental and economical implications. The initial high yields which helped the nation attain food-security are now becoming losses for the farmers. Prolonged application of the chemicals has degraded the soil. The dynamic biodiversity of agro-eco system has been disrupted by the chemical agriculture. Chemical pesticides have destroyed the pest-predator relations in the farm. Pests have developed resistance and farmers have to buy more virulent pesticides. Bio-magnification results in high concentration of pesticides reach the food chain and ultimately the human consumers causing many diseases. Vivekananda Kendra – Natural Resources Development Project (VK-NARDEP) working on a sustainable model of agriculture found that cattle-centric approach with many subsystems make the farm-homestead ecologically and economically healthier. Hence VK-nardep has come up with a host of low-cost green technologies strengthening the nutrient and energy flow while increasing biodiversity at the soil and farm levels. The technology package includes:

i. **Azolla (listed in red data book) as a broad-spectrum Bio-feed** through cost-effective back-yard cultivation. This integrates Azolla as part of homestead boosting milk, meat and egg production. It also helps in sequestrating CO_2 @ 4 MT/year/acre.
ii. **Cattle-dung based fortified bio-manure** which boosts crop productivity increasing the soil microbial bio-diversity.
iii. **Cattle-Urine based liquid formulations** (with special emphasis on country cow): a pest repellent and growth promoter replacing chemicals.
iv. **Enzyme-assisted Fish Amino** a growth promoter produced from waste fish and is rich in minerals, nitrogen and amino acid
v. **Fast track composting** by a consortium of microbes within 40-60 days (instead of 120) provides better yield, substantially reducing CO_2 emission.
vi. **Bio-methanation plant** based on kitchen waste, provides both green energy and nutrient-rich slurry which is used in home-garden and as agro-inputs.
vii. **Selected use of weeds** for herbal medicinal preparation which can both supplement farm income and also improve the health of human and livestock.

Installing these sub-systems the self-reliance of the farmer in farm inputs highly increases. Dependency on external inputs – particularly the chemical pesticides and fertilizers is proportionally reduced. The income of the farmer increases visibly with inputs like Azolla. The household hygiene increases with bio-methanation plant. The nutrient slurry based home herbal and/or vegetable gardens increase food security and also health conditions. All these combined effects improve the economic income of the farmer while making the farm eco-system healthier and bio-diversity rich.

INCCBSD 2013