Mushroom Research and Community Activities in Namibia

UNU-INRA Supported Project: University of Namibia

- UNU-INRA supported mushroom activities at the University of Namibia (UNAM) is based at the Sam Nujoma Marine and Coastal Resources Research Centre (SANUMARC) and the Zero Emissions Research Initiatives (ZERI)
  - SANUMARC is one of the operating units of UNU-INRA
  - ZERI is a Regional project for Africa launched in 1994 by the United Nations University
  - ZERI project and SANUMARC are designated Node of excellence in Mushroom farming by the NEPAD Southern Africa Network for Biosciences (SANBio) Initiative.
- Other supporting Institutions / Donors for mushroom activities in Namibia
  - NEPAD: The New Partnership for Africa’s Development
  - UNDP : United Nations Development Programme
  - GEF: Global Environment Facility
  - NedBank Namibia, Standard Bank Namibia, Rössing Foundation, etc

RESEARCH FOCUS
- Exploring utilization of various organic substrates for mushroom production
- Pasteurization techniques of different substrates
- Field testing different types of substrate sterilization systems
- Mushroom cultivation under different climatic conditions
- Medicinal properties of indigenous mushrooms
- Genetic diversity of the endemic Ganoderma species in Namibia
- Performance and evaluation of mushroom houses constructed from local materials
- Cost-benefit analysis of mushroom production in rural communities
- Amplification of mycelia colonisation of a substrate

COMMUNITY OUTREACH
- Individuals & groups interested in mushroom cultivation are given training in cultivation techniques
- Trainings are aimed at promoting cultivation, consumption & medicinal uses of mushrooms in Namibia
- Trainees are encouraged to establish community projects
- Alternative Mushroom Houses for rural communities

BENEFITS OF MUSHROOMS
- **Source of nutrients:** Rich in protein, vitamins and essential micronutrients such as iron, calcium, sodium, potassium and phosphorus.
- **Medicinal value:** Ganoderma in Namibia is traditionally used for the treatment of liver problems, heart condition, asthma, cancer, high blood pressure, arthritis and veterinary applications
- **Source of income for rural communities:** Individuals and SMEs to generate income.
- **High production on substrates:** Ability to grow on substrates which are byproducts of other agricultural processes.

CULTIVATION OF GANODERMA LUCIDUM
- The mushroom Ganoderma is an indigenous species found in the wild in Namibia
- Locally used for the treatment of liver problems, heart condition, asthma, cancer, high blood pressure, arthritis, boosting immune systems in HIV positive people & veterinary applications
- The Ganoderma lucidum fruits being cultivated at the University of Namibia main campus
- The project is funded by NEPAD/SANBio
- For human immune boosting.
- Construction of a technology Park is underway
- Fruit bodies will be processed into tea & capsules in Techno-park

ALTHERATIVE MUSHROOM HOUSES
- Constructed from local materials such as thatching grass, clay bricks, reeds etc.
- Moisture retention & ventilation are the most important aspects of a mushroom house

Selected mushroom related publications for local communities

UNAM main campus ©Kandhila-Muandingi, 2011

Effect of different organic substrates on the growth of Pleurotus eryngii (Oyster mushroom)

G. lucidum in the mushroom house at UNAM main campus ©Kandhila-Muandingi, 2011

G. lucidum in the mushroom house at UNAM main campus ©Kandhila-Muandingi, 2011

Average percentage change in mass of organic substrates from 0 to 90 days

Trainees posing with facilitators in Katima Mulilo, North East of Namibia © Martha Hausiku, 2010

Local mushroom house at Katima Mulilo, North-Eastern Namibia © Martha Hausiku, 2010

Gel electrophoresis of the amplified DNA internal transcribed sequence 18S region of the Ganoderma species Kandhila-Muandingi (2011)

Fruiting bag of oyster mushroom at Unam, Main campus, Windhoek © Martha Hausiku, 2010