

New initiative in mushroom cultivation in Africa

By Dr Mrs Mary Obodai, Stephen Nketia & Augustine Andoh

A NEW mushroom initiative has been launched in Ghana that seeks to bring edible mushrooms and information on mushrooms to every household, restaurant and chop bar.

This initiative called the Mushroom Initiative Ghana, seeks to advance the mushroom industry in Ghana and in Africa as a whole. This initiative was launched as part of the second African conference on edible and Medicinal Mushrooms held in Ghana this year.

The initiative, among several objectives, hopes to harness the collective potential of all the stakeholders in the industry in Ghana.

The formulators of the new initiative want to provide suitable platform to enhance networking for the sharing of information and technology and vastly increase the production of mushroom in Ghana and Africa.

The Second African Conference on Edible and Medicinal Mushrooms (ACEMM) took place at the Noguchi Memorial Institute for Medical Research (NMIMR) in Accra recently.

There were about 50 scientific presentations at the conference that attracted about 90 participants from Ghana, Kenya, Nigeria, Uganda, Cameroon, United States of America, and Namibia among others. The aim of the conference was to strengthen research and development in the mushroom industry in Africa.

The conference was organised by the CSIR-FRI in collaboration with the African Society for Edible and Medicinal Mushrooms (ASEMM), Accra Polytechnic and the Community Directed Development Foundation (CDDF). It was supported Aloha Medicinals Incorporated, America's largest producer of organic medicinal mushrooms, Dr Myko San Health from Mushrooms Ltd, Zagreb and International Society for Mushroom science (ISMS). The theme of the conference was "Mushrooms: Key to Food, Health and Environmental Security".

The first African Conference on Edible and Medicinal Mushrooms took place in Uganda in 2006.

The second African conference that took place in Accra identified the need for taxonomists and para-taxonomists to identify all the different species of mushroom that are available in Africa.

The conference emphasised the need to enhance skills of mushroom farmers in order to add value to products was also emphasised. Scientist, farmers and stakeholders who met also expressed the need to network and communicate continent wide in order to share ideas and technologies. The need to strengthen research and academic institutions was also recognised.

Again, there is the need to produce a simple field handbook with clear illustrations of the diagnostic characters of the edible and non edible mushrooms to

help mushroom pickers in Ghana and indeed the whole of Africa as has been in other countries was identified.

The Accra conference elected officers of the African Society for Edible and Medicinal Mushrooms ASEMM. They were Dr Moon S. Isikhuemhen (Nigeria), President, Professor K. M. Bosompem (Ghana) Vice-President, Dr Percy Chimwamurombe (Namibia) Executive Secretary and Mar Murangira James Mugaisha (Uganda), Organising Secretary, Dr Celestina Ihagere, (Nigeria) Treasurer and Dr John Holliday (USA), non-African member.

Edible and medicinal mushrooms until recently remained largely unknown, unidentified, understudied and under-reported in the forest reserves of Ghana and or Africa.

Why should mushrooms specially excite us? In our fluid world of globally-threatening diseases, from viruses to all sorts of flu, mushrooms may a lot to offer. Mushroom contributes to food health and environment security in Africa, help reduce poverty and help achieve the millennium development goals.

Some mushrooms have been discovered to contain ingredients that could be used for the production of new drugs for the treatment of cancers, HIV and AIDS, malaria, tuberculosis and other respiratory infections.

"The party line today is that HIV is an incurable disease, and that is not the case. We have many patients that are converting from HIV positive to HIV negative." Says Dr John Holliday, founder and president of Aloha Medicinals Incorporated, a participant.

"We think this is the next generation of medicine," Holliday said. "These are medicines derived from natural products, but using modern technology to standardise it." Aloha Medicinals is a bio-pharmaceutical company that specialises in creating the raw materials from mushrooms to make medicines, particularly immune-enhancement products.

Some extracts or combinations of them are useful as dietary supplements to boost the immune function of people with weakened immune system as well as improve their ability to fight diseases. They contain vitamins iron; calcium, phosphorus and other folic acid that will help boost the immune system.

Several species have a definitive effect on blood pressure, tumours and viruses. Mushrooms stimulate the formulation of interferon, a body chemical that fights viral infection and cancer. When eaten regularly, oyster mushroom assists the body to fight cancer.

They also have relatively large amount of fibre and carbohydrate. They have very low salt content makes them very good for those with kidney and heart ailments and hypertension. Mushroom nutraceuticals, or refined mushroom extracts, can be consumed in the form of capsules, tablets, soft drinks or dietary supplements and have potentially therapeutic applications. Mushrooms are very tasty and delicious. They can be used in a variety of dishes.

Mushrooms have been noted to be an important source of bioremediation to improve the environment. They convert agricultural wastes and residues into food and useful products.

Mushroom cultivation is an interesting activity. It requires little water and no arable land is needed. It involves converting agricultural waste to fertiliser and soil conditioners. It provide extra source of protein and valuable vitamins and minerals. It is income generating.

Many people may have interest in consuming mushrooms because of its health benefits.

They contain large amounts of good quality protein (about 19 to 35 per cent). The value of protein is determined by the kinds of amino acids that forms the protein. Mushrooms contain the entire essential that a human beings need as well as most commonly occurring non-essentials amino acids and amides.

Mushrooms contain less protein than soybeans (39 per cent of dry weight). Mushrooms also contain vitamins such as thiamine (vitamin B1), niacin (vitamin B2), biotin and ascorbic acid (vitamin C) and have significant amount of minerals such as phosphorus, potassium, iron and some calcium as well as sodium.

Ms Sherry Ayitey, Minister of Environment, Science and Technology (MEST) in a keynote address, said that the MEST and CSIR would develop programmes to teach rural women to utilise several agricultural wastes such as cassava peelings in mushroom production in the rural areas. "It is obviously supportive of our efforts to address the problem of waste management at the various local assemblies".

The minister therefore encouraged metropolitan, municipal and district assemblies to consider the large scale cultivation of mushrooms to help households and rural communities have improved nutrition and health benefits. Due to research activities and training programmes of two institutes of the Council for Scientific and Industrial research (CSIR-FRI), namely the Food Research Institute and the Forestry Research Institute of Ghana (CSIR-FORIG) a lot more people have accepted the local and some exot-



• Mushrooms are easy to cultivate and have numerous health benefits

ic mushrooms.

About 6,000 mushroom farmers have been trained in Ghana since the National Mushroom Development Project started in the 1990s. Many farmers have been trained in its cultivation local and exotic mushrooms and are producing for the local market. Some of the mushrooms cultivated are Oyster Mushrooms (*Pleurotus ostreatus*), Abalone Mushrooms (*Pleurotus cystidiosus*), Straw/Oil-Palm mushrooms (*Volvariella volvacea*) and Wood ear (*Auricularia polytricha*).

A Mushroom Growers and Exporters Association of Ghana (MUGREAG) has been in existence since 1994 by trained farmers from the NMDP.

There is a ready market for mushrooms that can serve restaurants, hotels, caterers and individuals in Ghana.

The members of the Mushroom Growers and Exporters Association of Ghana (MUGREAG) need an office secretariat, governmental support, ready/available market, technical support, and financial assistance. Venturing into the competitive and export market entails consistent maintenance of production levels, standards, processing and packaging to meet international standards.

There is a ready market for mushrooms that can serve restaurants, hotels, caterers and individuals in Ghana. There may be a lot to benefit from a new mushroom initiative. It calls for support from government and collaboration amongst academic and research institutions, farmers, restaurants, chop bars, the marketing chain and individuals, etc.