

**COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH**

**FOOD RESEARCH INSTITUTE**



**TECHNICAL REPORT**

**TRAINING OF UPoCA/IITA WOMEN ON MUSHROOM PRODUCTION  
USING CASSAVA PEELS IN KORIBONDO, SIERRA LEONE HELD ON  
THE 5<sup>TH</sup> TO 10<sup>TH</sup> APRIL 2013.**

**By**

Matilda Dzomeku and Richard Takli

(2013)

## **INTRODUCTION**

Mushrooms are a familiar sight amongst the flora of tropical African environments. In these environments, mushrooms sprout out of decaying felled logs and palm trees, termite hills, tree stumps and wet soils among many other sites, in both dry and rainy seasons. Mushrooms, also called fungus, feed on organic matter. Many types of mushrooms are delicacies in African homes. Mushrooms are usually brown or white in colour and appear in the form of broad or small domed cap or “petals” attached to their stalks.

In Sierra Leone, mushroom availability had been only through the blessing of nature over which man has no control, and the forest had remained the only local source of mushroom. Many hotels and restaurants import mushrooms for use in various recipes. Until now, Sierra Leone farmers had little or no idea about how to domesticate and produce mushrooms as a business, let alone be more fully aware of its high nutritional, economic and medicinal values.

The training at Koribondo was formerly opened by Mr. Edmond Saidu representing the Bo District Agricultural Officer of MAFFS who commended the initiative by IITA and urged participants to be diligent as they went through the training so as to help address the scarce and poor availability of quality food especially for children, pregnant and lactating women.

Koribondo Town Chief Mohamed Kidjan expressed gratitude to IITA and its partners for implementing UPoCA activities in his Chiefdom and added that his Chiefdom is endowed with huge agricultural potentials which when properly tapped could turn around the grinding poverty and hunger faced by the populations.

At the closing ceremony of the training both Mr. Edmund Saidu of MAFFS and Catherine Sillah of WVI urged participants to apply the knowledge and information they had acquired, and to share their experiences with others. “It is only when we

work together that we can succeed to lift our communities from hunger and poverty,” noted Mr Saidu.



Stakeholders meeting (CSIR-FRI, SLARI and IITA)



**Group picture of trainees and resource person.**

## **TRAINING**

The benefits of mushroom farming especially in Sierra Leone where food insecurity, malnutrition, diseases and poverty are endemic cannot be overemphasized.

Mushroom production to beef up food security and small holder commercialization capacity was therefore focus of a 5-day intensive hands-on training of twenty (20) women representing 6 Farmer Based Organizations (FBOs) from humid forest zones in the southern and eastern provinces of Sierra Leone. Other participants were from Ministry of Agriculture Forestry and Food Security (MAFFS) and nutrition department of the Sierra Leone Agricultural Research Institute (SLARI)

The hands-on training was organized by UPoCA project of the International Institute of Tropical Agriculture (IITA) and CSIR-Food Research Institute Accra Ghana. The Resource persons were Ms. Matilda Dzomeku (Research scientist) and Mr. Richard Takli (Technologist). They were supported by staff from IITA and SLARI. The training was hosted by Muamia Womens' Cooperative in Koribondo, Jaiama Bongo Chiefdom and World Vision International represented by Catherine Sillah of WVI-Bo office in Bo district.

Training sessions highlighted the value of agricultural waste such as cassava peels, rice bran, rice straw, dry banana/plantain leaves, decayed? Felled oil palm stumps, Oil palm bunch/pericarps branches/fibres and sawdust as suitable substrates to produce edible and medicinal mushrooms. Of immediate interest, the training underlined the economic use of cassava peels which are usually thrown away to rot on rubbish heaps and cause unhygienic conditions around cassava processing centres in the country. In other words, agricultural by-products that had been of little or no value to farmers would now become substrates for food security, enhanced nutrition, wealth creation and health.

Participants received training in the different materials needed to produce mushrooms. Prior to the training, Mr. Syl Fannah (UPoCA project National Coordinator) facilitated the collection of the materials which included agricultural wastes, empty metallic drums with lids, cassava graters, hammer mills, PVC pipes, rubber bands, Quick lime, firewood, and construction of incubation and cropping houses built with local materials. CSIR/FRI provided the spawn (mushroom seeds) and high density polypropylene bags.

## TENTATIVE TIME TABLE FOR MUSHROOM TRAINING

<b>DAY</b>	<b>TIME</b>	<b>ACTIVITY</b>	<b>RESOURCE PERSON</b>
DAY 1	9am -12noon	Introduction to Mushrooms	Matilda Dzomeku
	12noon-1.30pm	Lunch break	
	1.30pm-4.30pm	Substrate collection/preparation/site preparation	Matilda Dzomeku/ Richard Takli
DAY 2	9am -12noon	Oil palm mushroom (Lectures)	Matilda Dzomeku
	12noon-1.30pm	Lunch break	
	1.30pm-4.30pm	Substrate preparation	Richard Takli
DAY 3	9am -12noon	Practicals Oysters	Matilda Dzomeku
	12noon-1.30pm	Lunch break	
	1.30pm-4.30pm	Practical continued	Richard Takli
DAY 4	9am -12noon	Practicals oilpalm	Richard Takli
	12noon-1.30pm	Lunch break	
	1.30pm-4.30pm	Practical continued	Matilda Dzomeku

DAY 5	9am -12noon	Cropping / preservation	Matilda Dzomeku
	12noon-1.30pm	Lunch break	
	1.30pm-4.30pm	Pest/diseases/marketing	Matilda Dzomeku/ Richard Takli

## **PRACTICAL**

During the 5-days, participants learnt and practiced the different steps of how to cultivate two types of mushrooms: oyster and straw mushrooms. They practiced how to compost agricultural waste for use as substrates; bag the substrate into the polypropylene bags and sterilize in oil drums; load sterilized substrate in metal drums and plastic sachets; sterilize the substrates?; and inoculate sterilized substrates or compost bags with mushroom spawn or “seeds”, Incubate the compost bags and finally crop them . Mr. Richard Takli, explained to the participants that the purpose of sterilizing the substrates was “to ensure that microbes and other contaminants were destroyed and harmful mushrooms were also destroyed to avoid competition with the good mushrooms for nutrients.”

Within 4 to 6 weeks of storage on racks inside the incubation and cropping houses under appropriate temperature, ventilation, watering and humidity the mushrooms will be close to ready for harvest.



Milling of cassava peels



Mixing of additives to cassava peels





Trainees practicing bagging of the substrate.



Bagged and sterilized substrates.



Question time during a lecture



Group showcasing their bags



**Bags in incubation room**



**Lectures**



**Cropping house**

## **VALUES OF MUSHROOMS**

Ms. Matilda Dzomeku emphasized to the participants that “the mushrooms the IITA/UPoCA project is introducing through the training are cheaper to grow than most crops, have protein content that is twice that of meat, and are also rich in folic acid which is needed by pregnant women and lactating mothers; and other types of mushrooms that will be introduced in the near future have medicinal properties”. She said mushrooms generate income for farmers thereby boosting not only food security but equally contributing to national agenda for commercializing the agricultural sector. Matilda further underscored the essence of hygienic environment in the handling of mushrooms more so during cropping/harvesting and she provided tips on mushroom preservation methods. She further explained to participants how to control pests and diseases that affect mushrooms and menus that can be derived from both mushrooms.

## **COLLABORATORS**

Dr. Braima James IITA Country Representative in Sierra Leone, outlined the efforts of IITA to contribute to the country's needs which among other things "will now include the emerging need to build the technical capacity of SLARI in microbiology research that enables the national institute to eventually serve as the source of mushroom seeds for smallholder farmers/FBOs" he said during the training. He informed the participants that "through projects like the USAID-funded UPoCA project, IITA will not only boost on-farm cassava productivity but will build smallholder capacity to add nutritional and market value to farm harvests, because such products help to put more money into the pockets of community members".

## **CONCLUSION**

Participants expressed satisfaction in the knowledge acquired and are excited to go back to their various villages to put it into practice. They appealed to the organizers to bring the training to their various villages so that other farmers can also benefit from it.