

SWEETPOTATO RECIPE BOOK



Sweetpotato Processed Products from Eastern and Central Africa

Editors: C. Owori , Berga Lemaga, R.O.M. Mwanga, A. Namutebi and R. Kapinga

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Africa**

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FOREWARD

Over the past ten years, national agricultural research systems in Eastern and Central Africa in collaboration with the Regional Network for Improvement of Potato and Sweetpotato (PRAPACE) and the International Potato Center (CIP) have been involved in major efforts to develop new processed sweetpotato products as a way of generating value-added income for sweetpotato producers and processors and promoting a more diversified diet. Work on product development has generated numerous recipes for value-added sweetpotato processed products. Some of these new products could be used to exploit opportunities to establish income generating agro-enterprises in rural and urban areas.

Perceptions among urban dwellers in East Africa have been increasingly shifting from perceiving sweetpotato as "a poor man's food" to a new image of sweetpotato as a "nutritious health food". Consumer demand for processed products that are tastier, easier to prepare, easier to store, more nutritious and attractive is also rising. Both traditional and new value-added sweetpotato products benefit from this growing demand. This has generated requests for information from potential end users, including farmers, rural and urban-based agro-processing entrepreneurs (for example, women's groups, individual snack product processors, bakery and flour milling industries that wish to establish and/or expand sweetpotato-based processing enterprises), consumers (including catering institutions, hotels and restaurants), rural and urban based households, wishing to add variety to their diet, and researchers and extension workers, who need relevant technical information that they can utilize in training and demonstrations of sweetpotato products.

Information on new value-added and traditional sweetpotato products is available in a few institutions that have been involved in sweetpotato product development and promotion, primarily national agricultural research organizations and district level extension systems. This information, however, has not reached a large section of potential end users in the region. Documentation of preparation methods of traditional sweetpotato dishes has also been limited. Consequently, boiled/steamed roots remain the main method of sweetpotato preparation and consumption.

This book represents a collective effort of scientists and practitioners collaborating as part of the PRAPACE network to assemble in one source published and unpublished information concerning available recipes for sweetpotato products, both traditional and new, in the Eastern and Central African region. The objectives of this publication are to improve end users' accessibility to available information in the region on sweetpotato products and to stimulate ideas for new products with high potential demand. Methods for processing sweetpotato primary products and recipes for 82 new sweetpotato secondary processed products, 36 traditional sweetpotato food products, six sweetpotato leaf-based dishes and five sweetpotato-based salads are provided. For each product, ingredients used, their measure in both local and metric units, and clear steps for preparing are given. Users are encouraged to use and improve upon these recipes. Good eating and good health.

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INTRODUCTION

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Sweetpotato (*Ipomoea batatas* (L.) Lam.) is an important food crop in eastern and central Africa. The crop is particularly important in the densely populated countries in the Lake Victoria zone particularly Uganda, Rwanda and Burundi, where it plays more prominent and diversified roles in the food system. In Uganda, sweetpotato plays distinct roles of a predominant staple as well as a complementary staple food crop that is consumed throughout the year by farmers and low-income consumers. Sweetpotato is also a complementary staple in Rwanda and Burundi. The crop plays a primary role of famine reserve staple in Kenya, Tanzania and the Democratic Republic of Congo.

The roots contain significant amounts of carbohydrates constituted mainly in the form of starch, sugar and dietary fiber, which play an important role of providing low-cost energy in the diet of consumers. Besides carbohydrates, sweetpotato roots contain significant amounts of vitamins and appreciable amounts of minerals that enable normal functioning of the body system. Zinc and calcium are the main minerals. The vitamins include vitamin C, the B group (thiamin (B₁) riboflavin (B₂), folic acid), and vitamin E (tocopherol). Orange-fleshed sweetpotato is an excellent source of beta-carotene that provides sufficient vitamin A to meet the required daily allowance in the diet. The orange fleshed sweetpotato varieties can make important contributions to alleviating vitamin A deficiency, which is currently a major health problem in most developing countries. Sweetpotato roots also contain lysine, the important amino acid which cereals are deficient in. The leaves and tips are good sources of vitamin A, energy, zinc, calcium and proteins. Sweetpotato leaves contain twice the amount of protein as the same weight of roots.

Sweetpotato in the eastern and central African region is mainly used as food for human consumption and to a lesser extent as animal feed. The crop is mainly consumed in the fresh form as boiled/steamed and roasted roots. Boiled roots can also be served as mashed, stewed and fried food. The use of sweetpotato as traditionally processed products is important in regions of some countries, including the northeastern region of Uganda, Lake Victoria zone of Tanzania and western part of Kenya where income levels are relatively low. Within these regions, sweetpotato is traditionally processed into sweetpotato dried chips and flour at household level during the dry season. Dried sweetpotato chips are consumed as boiled products, whereas the flour is used as an ingredient for preparation of traditional dishes. In the Democratic Republic of Congo, Kenya, Madagascar and Tanzania, sweetpotato leaves are consumed as cooked fresh vegetables or salads. Sweetpotato, in the form of roots, leaves and waste in the form of peels, damaged roots, is fed to cattle and pigs.

Besides food and nutritional security, sweetpotato to a lesser extent, plays a role in income generation for millions of small farmers in the eastern and central African region. The crop is a source of cash income where roots are produced purposely for sale or when there is surplus production. Production estimates show an increasing trend in sweetpotato

production in terms of area planted and total production. Generally, the non-orange fleshed sweetpotato varieties pre-dominate in the production systems. The increasing production pattern has tended to result in surplus supplies of fresh sweetpotato roots to traditional markets, causing a decrease in sweetpotato prices. Compelled by such market trends, farmers are constantly seeking ways of raising their incomes from sweetpotato through the transformation of the low-priced roots into marketable high-value processed products.

To take advantage of surplus production and fully exploit the potential of sweetpotato for income generation, research was conducted on product development in the eastern and central African countries. The research sought to enhance the contribution of sweetpotato to increasing income through value addition by improving the traditional processing methods, developing new uses and new markets. The work has developed improved production methods and recipes for diverse processed products, including quality sweetpotato dried chips and flour, nutritious composite flours, sweetpotato snack products, juices, preserves and desserts. The products can be used by rural and urban households, small and medium agro-processing enterprises as well as food industries. These different users of sweetpotato products represent new market opportunities for sweetpotato.

Recipes for diverse traditional products that can be used to provide a variety of dishes in the diet of consumers were collected from different regions within the eastern and central African countries. Despite the potential of the new processed sweetpotato products to improve the income generation by sweetpotato in the food system, the extent of their use in the region is still not widespread. Promotion of these products is of paramount importance to which this recipe book will significantly contribute. The purpose of this book is to provide recipes for production of acceptable and diverse sweetpotato processed products.

CHAPTER I

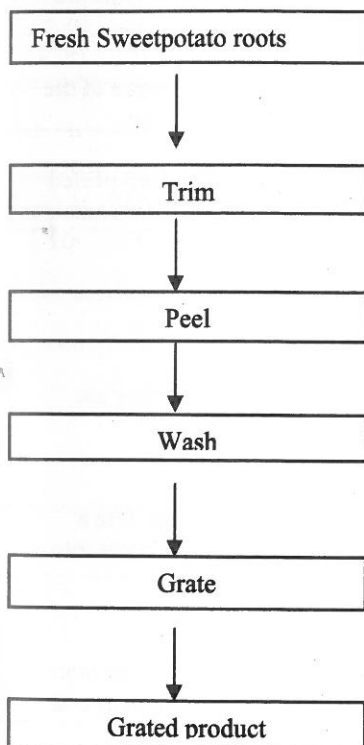
SWEETPOTATO PRIMARY PRODUCTS AND PROCESSING PROCEDURES

C. Otori and V. Hagenimana

1.1 Sweetpotato primary products used as ingredients

Sweetpotato flour, fresh-grated, and boiled and mashed sweetpotato are the types of sweetpotato primary products that are used as ingredients for processing of value-added sweetpotato processed products. It is essential to use high quality sweetpotato ingredients that will produce attractive and appealing end products to potential consumers. This section describes the processes for producing quality primary sweetpotato products that are used as ingredients. The process flows are on the left with descriptions on the right. The most suitable sweetpotato varieties for processing products, quality assurance checks, processing conditions and equipment used are given.

1.1.1 Fresh-grated sweetpotato



Notes

Select mature, fresh, healthy, medium to large-sized roots of similar variety for grating. Orange and non-orange fleshed varieties with high dry matter content can be used.

Use a knife to trim all the unwanted portions of the roots, for example, damaged, parts and eyes.

Use a knife to peel sweetpotato roots. Keep peeled roots immersed in water placed in a plastic container

Use clean water placed in plastic container to wash peeled roots

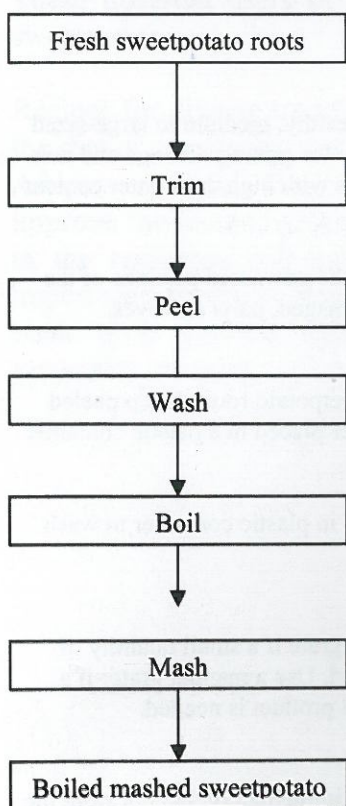
Use a kitchen grater to grate if a small quantity of grated product is needed. Use a manual grater if a large quantity of grated product is needed.

Use the grated product immediately. Do not store the product for later use, as it easily undergoes enzymatic browning that reduces product quality.



Ready-to-use fresh-grated sweetpotato produced from an orange fleshed sweetpotato variety

1.1.2 Boiled and mashed sweetpotato



Notes

Select mature, fresh, healthy, medium to large-sized roots of similar variety. Orange and non-orange fleshed varieties with high dry matter contents are most suitable.

Use a knife to trim all the unwanted portions of the roots, for example, damaged parts and eyes.

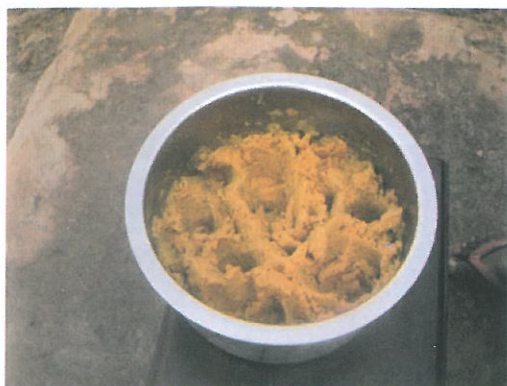
Use a knife to peel sweetpotato roots. Keep peeled roots immersed in water placed in a plastic container.

Use clean water to wash peeled roots.

Boil the washed sweetpotato roots until they are cooked soft

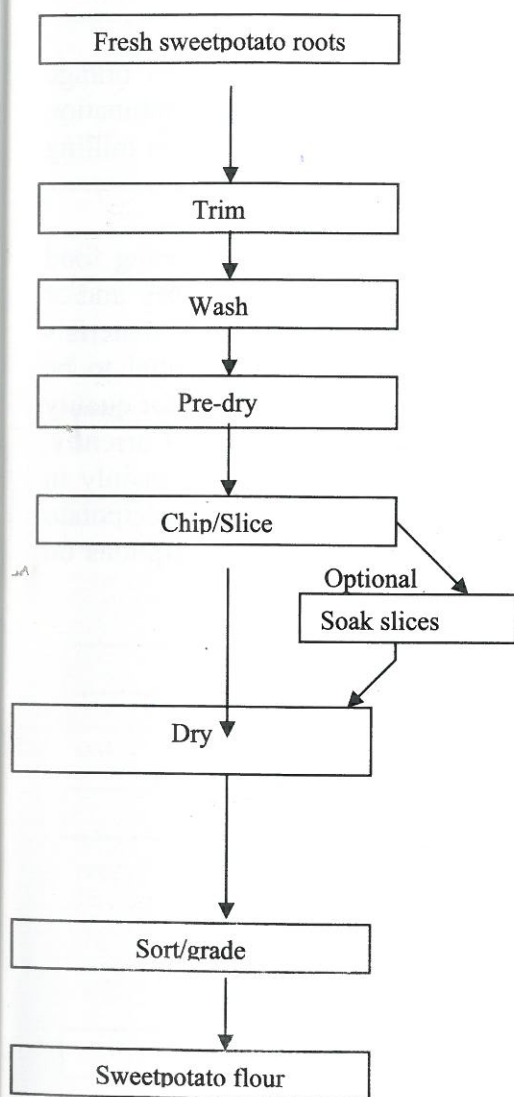
Drain off excess water from boiled roots. Use a wooden stick to mash the warm, cooked roots into a smooth product.

Use immediately the mashed product. Do not store the mashed product for later use, as it hardens and deteriorates fast.



Ready-to-use boiled and mashed sweetpotato produced from orange fleshed sweetpotato

1.1.3 Sweetpotato flour



Notes

Select mature, fresh, healthy, medium to large-sized roots of same variety. Orange and non-orange varieties with high dry matter contents and low levels of browning discoloration are most suited for flour production.

Use a knife to trim all the unwanted portions of the roots for example damaged parts and eyes.

Use a nylon rag or hand brush to thoroughly scrub and wash the skin of roots in clean water.

Pre-dry the washed roots in the sun to drain excess moisture from root surface.

Use a chipper or slicer to cut the roots into thin pieces that dry fast.

Soak slices for 90 minutes in water which is twice the volume of slices to produce good quality

Dry slices/chips on raised tray dryers in the sun. Keep turning the drying chips that should be thinly spread on the dryer. Dry to a moisture content of 12%. This is subjectively determined if it is not possible to squeeze out moisture from pieces. The chips are also brittle and break easily without being kneadable.

Sort by hand to remove discolored and under-dried chips. Re-dry the under dried chips.

Mill by hammer to the required particle size. Pack the flour in bags and seal with heat sealer or electric sack stitcher. Store in cool dry place



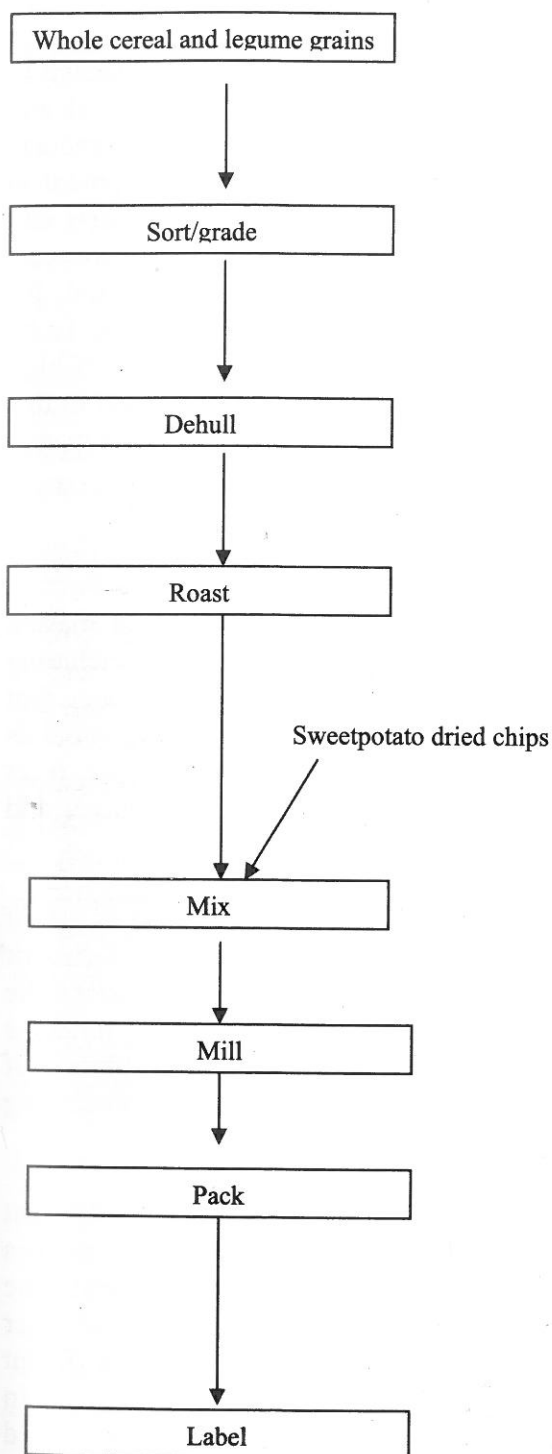
Ready-to-use sweetpotato flour

1.2 Sweetpotato composite flours

Processed sweetpotato primary products such as dried chips produced from orange fleshed sweetpotato varieties that are rich in pro-vitamin A can be used in combination with other grains and legumes to produce sweetpotato based composite flours in milling industries.

The processing of sweetpotato composite flour for use in preparation of weaning food and other purposes offers good opportunities for establishing new businesses and/or diversifying product lines in existing milling factories. Since most of the raw materials used are locally available, the products have good demand and great potential to be profitable. Sweetpotato composite flour also offers good market opportunities for quality sweetpotato dried chips that are produced on a commercial basis in rural areas. Currently, the composite flour products are being produced by flour milling industries mainly in Uganda. This section describes the process stages for producing quality sweetpotato composite flour-based products. The process flows are on the left with descriptions on the right.

1.2.1 Sweetpotato-cereal-legume composite flour



Notes

Use a seed cleaner to remove foreign matter such as stones, leaves and/or wash tanks with clean water to remove pesticide residues and soil. Dry the grain if the moisture content is higher than 12%.

Sort by hand to remove mouldy grain.

Use dehuller to remove bran.

Roast for 5-15 minutes at 180°C to remove anti-nutritional factors in legume, increase digestibility and shorten cooking time of product.

Add dried sweetpotato chips. Use orange fleshed sweetpotato varieties to produce vitamin A rich dried chips as described in section 3.1.3.

Mix the correct proportions of roasted legume, cereal with sweetpotato dried chips.

Mill to the required particle size.

Fill flour manually or use a bag filler to pack required weight of flour in paper, cardboard or plastic bags. Seal with electric sack stitcher or heat sealer.

Provide information such as brand name of product, manufacturing date, nutrition information, address and name of manufacturer, expiry date on label.

BACKGROUND TO RECIPES FOR SWEETPOTATO SECONDARY PROCESSED PRODUCTS

C. Owori, A. Namutebi, R. Kapinga, R.O.M. Mwanga, and B. Lemaga

Recipes for various new and traditional sweetpotato secondary products are presented in this book. For recipes of each product: ingredients used, their quantities in local and metric measurements and methods of preparation are given. New sweetpotato products have good market demand and offer good opportunities for enterprise development at micro, small and medium-scale levels in rural and urban areas. The new products can also be made by households to provide variety in their diet. There is increasing consumer interest in traditional sweetpotato products. These products can be prepared for consumption by rural and urban households and for sale in hotels and restaurants. To be competitive, it is essential for the new and traditional sweetpotato products to be of high quality. Standardized recipes for new and traditional products have been provided in this book to enable users to achieve a balance between product quality, profitability and consumer acceptability.

2.1 New recipes

These are developed recipes for various products including bakery, fried and roasted snack products, preserves such as jam, ketchup and juice, weaning food including porridge and mashes. Other developed recipes are for side dishes such as sauces that utilize sweetpotato leaves and salads that incorporate fresh-grated and boiled roots as ingredients. Work on recipe development aimed at producing products that meet customer needs in terms of reduced processing costs, improved nutrition, tastes and preferences.

Most of the bakery and fried products presented in this book utilize wheat flour as one of the major ingredients. Comparing the cost of wheat flour and the different forms of sweetpotato used as ingredients, wheat flour is relatively more expensive across the Eastern and Central African countries. New recipes for the bakery and fried products were thus developed in Uganda, Kenya, Tanzania and Rwanda by partial substitution of the wheat flour with the different forms of sweetpotato to reduce product processing costs.

Consumer tastes and preferences for products, however, vary across the different countries in the Eastern and Central African region. There are thus cases where recipes developed for similar bakery and fried sweetpotato products varied with regard to the proportions of wheat flour, the different forms of sweetpotato ingredients used and other ingredients. These variations reflect preferred tastes and preferences in the different countries and have been presented in this book as different recipes; i.e. recipe 1, 2, 3. In Uganda, the new recipes for bakery and fried products were standardized and are based on a combined weight of 2000 g of the major ingredients i.e. wheat flour and the different forms of sweetpotato used in the recipe. This combined quantity of wheat and

sweetpotato represents the minimum amount of the major ingredients that can be used by processors to produce products at a profit.

New recipes for ketchup jam and juices presented in this book utilize boiled roots as major ingredients. The rationale for using sweetpotato as an ingredient in these products is that sweetpotato is less costly than the fruits that are normally used to produce the products. Secondly, less sugar can be used in the recipes as much of the sugar is contributed by sweetpotato. Additionally, if roots from orange-fleshed sweetpotato varieties are used, they enrich the products nutritionally with vitamin A.

A large number of pre-school children in Sub-Saharan Africa particularly in rural areas suffer from vitamin A deficiency and protein-energy malnutrition. Recipes for weaning food products were developed: a) to provide low-cost food that contains sufficient energy, vitamins, minerals and proteins and b) to provide tastier and easier to prepare products that can be used to complement breast milk in infants, feed pre- and school going children and lactating mothers. Developed recipes for weaning food products including porridge and mashes utilize orange fleshed sweetpotato products (flour, boiled roots) as major ingredients.

Despite their nutritional value, utilization of sweetpotato leaves in countries in the Eastern and Central African region is very limited. New recipes for sweetpotato based leaf sauces and salads were thus developed to diversify utilization methods of sweetpotato products.

2.2 Traditional recipes

These are recipes that have for long been used by rural and urban households in the Eastern and Central African countries to prepare sweetpotato dishes that are served as a main meal or a snack. Sweetpotato in the form of fresh boiled roots has for long been the main method of preparation and consumption in the Eastern and Central African region. It was however, realized that although other traditional methods of sweetpotato preparation and consumption existed in specific locations, many households were not aware of them. Traditional recipes were thus collected and standardized to provide information to households that wish to increase their sweetpotato consumption through the use of varied preparation methods.

2.3 Weights and measurements used in recipes

The quantity of ingredients used for different recipes in this book is given in metric units and local measurements. Care should be taken not to mix the metric and local weights of ingredients in one recipe as metric equivalents have been used. The utensils used for local measurements include a standard tea and tablespoon for liquid measures; a standard cup and standard plastic mug (Appendix A), tea and tablespoons for solid weights. All spoon measures for solid weights are level unless otherwise stated. When measuring boiled mashed or fresh-grated sweetpotato ingredients in the local utensils, the products should be pressed down to ensure that all space has been filled.

Two types of utensils, the standard plastic mug and standard cup have been used as local measurements to give metric equivalents of different sweetpotato and flour ingredients for the following reason. Recipes presented in this book were developed in four different countries: Uganda, Kenya, Tanzania, and Rwanda. In Uganda, however, the plastic mug is the local standard measure that is widely used by households and in the market to measure flours and other foodstuff, while in Kenya, Tanzania and Rwanda the standard cup is the most commonly used local measure. It is therefore for the convenience of users in these countries that the popular utensils were used to provide local equivalent. The Metric equivalent of ingredients measured using one unit of local utensils is presented in Table 2.1.

Table 2.1 Measurements of ingredients

Local measurements	Metric equivalent
Solid (Weight)	
1 level teaspoon baking powder	4 g
1 level teaspoon salt	4 g
1 level teaspoon yeast	4 g
1 level teaspoon crushed garlic	5 g
1 level teaspoon curry powder	4 g
1 level teaspoon mixed spices	4 g
1 level teaspoon ground black pepper	4 g
1 level tablespoon sugar	10 g
1 level tablespoon margarine	20 g
1 heaped tablespoon margarine	40 g
1 standard cup sweetpotato flour	150 g
1 standard cup boiled and mashed sweetpotato	300 g
1 standard cup fresh-grated sweetpotato	300 g
1 standard cup wheat flour	150 g
1 standard cup cassava flour	125 g
1 standard cup sugar	250 g
1 standard cup margarine	250 g
1 standard cup minced meat	250 g
1 standard plastic mug sweetpotato flour	300 g
1 standard plastic mug boiled and mashed sweetpotato	600 g
1 standard plastic mug fresh-grated sweetpotato	600 g
1 standard plastic mug wheat flour	300 g
1 standard plastic mug cassava flour	250 g
1 standard plastic mug sugar	500 g
1 standard Plastic mug – margarine	500 g
Liquid (Vol.)	
1 teaspoon	5 ml
1 tablespoon	10 ml
1 standard cup	250 ml
1 standard plastic mug	500 ml

CHAPTER 3

SWEETPOTATO SECONDARY PROCESSED PRODUCTS FROM NEW RECIPES

C. Owor, R. Nungo, A. Kapande, C. Mukantwali and J. M. Randrianaivoarivony

3.1 Sweetpotato bakery products

This sub-section presents in detail sweetpotato bakery products and their recipes. The products include sweetpotato-based bread, buns, cakes, scones, cookies, biscuits, salted baked sweetpotato and sweetpotato-fish pastries. These products can be used as snack products for sale or home consumption. Also presented are sweetpotato pies that can be served as a complete meal in either hotels or at homes. Each of these products with the exception of salted, baked sweetpotato, use wheat flour and different forms of sweetpotato as major ingredients. .

3.1.1 Bread



Sweetpotato bread. Left: bread incorporating sweetpotato flour; Right: bread incorporating fresh-grated sweetpotato

a) Recipes for bread from fresh-grated sweetpotato

Recipe 1

INGREDIENTS

Fresh-grated sweetpotato

Wheat flour

AMOUNT

600 g (1 plastic mug)

1400 g (4.6 plastic mugs)

Sugar	180 g (18 level tablespoons)
Salt	20 g (8 level teaspoons)
Yeast	15 g (3.8 level teaspoons)
Margarine	240 g (6 heaped tablespoons)
Cooking oil	12 ml (2.4 teaspoons)
Luke warm water	adequate

Recipe 2

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Yeast
Sugar
Salt
Oil
Luke warm water

AMOUNT

150 g ($\frac{1}{2}$ standard cup)
150 g (2 standard cups)
4 g (1 level teaspoon)
10 g (1 level tablespoon)
4 g (1 level teaspoon)
20 ml (2 tablespoons)
adequate

b) Recipes for bread from sweetpotato flour

Recipe 1

INGREDIENTS

Sweetpotato flour
Wheat flour
Sugar
Salt
Yeast
Margarine
Cooking oil
Luke warm water

AMOUNT

460 g (1.5 plastic mugs)
1540 g (5 plastic mugs)
180 g (18 level tablespoons)
20 g (5 level tea spoons)
10 g (2.5 level teaspoons)
240 g (6 heaped tablespoons)
12 ml (2.4 teaspoons)
adequate

Recipe 2

INGREDIENTS

Sweetpotato flour
Wheat flour
Sugar
Salt
Yeast
Margarine
Luke warm water

AMOUNT

600 g (4 standard cups)
400 g (2.7 standard cups)
10 g (2 level tablespoons)
4 g (1 level teaspoon)
4 g (1 level teaspoon)
40 g (1 heaped tablespoon)
adequate

c) Recipe for bread from boiled and mashed sweetpotato

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Sugar
Salt
Yeast
Margarine
Cooking oil
Luke warm water

AMOUNT

600 g (1 plastic mug)
1400 g (4.7 plastic mugs)
180 g (18 level tablespoons)
20 g (5 level teaspoons)
15 g (3.8 level teaspoons)
240 g (6 heaped tablespoons)
12 ml (2.4 teaspoons)
adequate

PROCEDURE FOR ALL BREAD RECIPES

- a) Mix yeast and a little sugar in a little warm water in a cup. Leave for 10 minutes for froth to foam.
- b) Mix the dry ingredients together in a bowl; wheat flour, salt, sugar, and sweetpotato flour for recipe b. For recipes (a) and (c), add and rub fresh-grated or boiled, mashed sweetpotato to the flour mixture and mix.
- c) Add and rub margarine in the mixture.
- d) Make a well in the mixture and add oil, then mix.
- e) Add yeast solution to the mixture a little at a time while mixing.
- f) Add some warm water a little at a time while mixing and kneading the dough until it is smooth, nonsticky and elastic.
- g) Place the dough in a lightly greased polythene bag and leave to rise until it doubles in size. This will take about 90 minutes in a warm place.
- h) Remove the dough from the bag, punch the dough down and re-knead to remove air.
- i) Divide the dough into portions of the desired loaf size and knead each one slightly to release air.
- j) Shape each portion into a smooth loaf and place in a greased bread tin. Cover with plastic sheet and leave the dough to almost double in size.
- k) Bake in a hot oven pre-heated to 200°C until the top browns. This will take about 30 minutes.
- l) Remove bread from oven and from the bread tin then brush the top with fat.
- m) Allow the bread to cool and then wrap in thin plastic package.

3.1.2 Buns



Buns incorporating sweetpotato flour



Buns incorporating fresh-grated sweetpotato

a) Recipes for buns from sweetpotato flour

INGREDIENTS

Sweetpotato flour
Wheat flour
Sugar
Salt
Yeast
Margarine
Cooking oil
Luke warm water

AMOUNT

460 g (1.5 plastic mugs)
1540 g (5.1 plastic mugs)
160 g (16 level tablespoons)
20 g (5 level teaspoons)
15 g (3.8 level teaspoons)
240 g (6 heaped tablespoons)
8 ml (1.6 teaspoons)
adequate

b) Recipes for buns from boiled and mashed sweetpotato

Recipe 1

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Sugar
Salt
Yeast
Margarine
Cooking oil
Luke warm water

AMOUNT

600 g (1 plastic mug)
1400 g (4.6 plastic mugs)
160 g (16 level tablespoons)
20 g (5 level teaspoons)
15 g (3.8 level teaspoons)
240 g (6 heaped tablespoons)
8 ml (1.6 teaspoons)
adequate

Recipe 2

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Sugar

AMOUNT

250 g (0.8 standard cup)
550 g (3.6 standard cups)
100 g (10 level tablespoons)

Salt	4 g (1 level teaspoon)
Yeast	6 g (1½ level teaspoon)
Margarine	40 g (1 heaped tablespoon)
Cooking oil	5 ml (1 teaspoon)
Luke warm water	adequate

c) Recipe for buns from fresh-grated sweetpotato

INGREDIENTS	AMOUNT
Fresh-grated sweetpotato	600 g (1 plastic mug)
Wheat flour	1400 g (4.6 plastic mugs)
Sugar	160 g (16 level tablespoons)
Salt	20 g (5 level teaspoons)
Yeast	15 g (3.8 level teaspoons)
Margarine	240 g (6 heaped tablespoons)
Cooking oil	8 ml (1.6 teaspoons)
Luke warm water	adequate

PROCEDURE FOR ALL BUN RECIPES

- a) Mix yeast and a little sugar in little lukewarm water. Leave for about 10 minutes for froth to foam.
- b) Mix the dry ingredients together in a bowl i.e., wheat flour, sugar, salt and sweetpotato flour for recipe a.
- c) Add and rub boiled and mashed sweetpotato or fresh-grated sweetpotato for recipes b and c in the flour mixture
- d) Add and rub margarine into the dough then mix.
- e) Make a well in the dough mixture and add oil, then mix.
- f) Add the yeast solution to the mixture a little at a time, while kneading.
- g) Add some warm water a little at a time, while mixing and kneading the dough until it is smooth, non sticky and elastic.
- h) Put the dough in greased plastic bag or wrap and leave it to rise. This will take about 60 minutes in a warm place.
- i) Punch the dough down and knead the dough again to remove air.
- j) Divide the dough into small portions of the desired bun size
- k) Mould the dough portions into small balls and put on a greased baking tray.
- l) Place the balls about 0.5 cm apart on greased baking sheets
- m) Cover the balls with plastic sheet and leave the balls to swell until they almost double their size. This will take about 1 hour
- n) Bake the balls in a hot oven pre-heated at 180°C until the top turns light brown. This will take about 20 minutes
- o) Remove the buns from the sheet and brush the top with fat
- p) Leave to cool on a wire rack then pack in thin plastic package

3.1.3 Cakes

i) Queen cakes



*Queen cakes incorporating
Fresh- grated sweetpotato*



Queen cakes incorporating sweetpotato flour

a) Recipes for queen cake from sweetpotato flour

Recipe 1

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Vanilla/straw berry essence
Water

AMOUNT

600 g (2 plastic mugs)
1400 g (4.6 plastic mugs)
30 g (7.5 level teaspoons)
800 g (1.6 plastic mugs)
1400 g (2.8 plastic mugs)
14 eggs
10 g (2 heaped table spoons)
10 ml (2 teaspoons)
adequate (1 liter)

Recipe 2

INGREDIENTS

Sweetpotato flour
Cassava flour
Baking powder
Sugar
Margarine
Eggs
Vanilla essence
Mixed fruits (optional)
Milk (optional)
Water

AMOUNT

300 g (2 standard cups)
250 g (2 standard cups)
16 g (4 teaspoons)
250 g (1 standard cup)
250g (1 standard cup)
4 eggs
5 ml (1 teaspoon)
125 g ($\frac{1}{2}$ standard cup)
250 ml (1 standard cup)
adequate

Recipe 3

INGREDIENTS

Sweetpotato flour
Wheat flour
Yeast
Sugar
Margarine
Eggs
Vanilla
Milk (optional)
Water

AMOUNT

200 g (1.3 standard cups)
300 g (2 standard cups)
16 g (4 level teaspoons)
250 g (25 level tablespoons)
250 g (6.3 heaped tablespoons)
3 eggs
5 ml (1 teaspoon)
400 ml (1.6 standard cups)
adequate

b) Recipes for queen cakes from fresh-grated sweetpotato

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Vanilla /straw berry essence
Water

AMOUNT

400 g (0.6 plastic mug)
1600 g (5.3 plastic mugs)
30 g (7.5 level teaspoons)
800 g (1.6 plastic mugs)
1400 g (2.8 plastic mugs)
10 eggs
10 g (2 heaped tablespoons)
10 ml (2 teaspoons)
adequate (750 ml)

c) Recipes for queen cakes from boiled and mashed sweetpotato

Recipe 1

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Vanilla /straw berry essence
Water

AMOUNT

400 g (0.6 plastic mug)
1600 g (5.3 plastic mugs)
30 g (7.5 level teaspoons)
800 g (1.6 plastic mugs)
1400 g (2.8 plastic mugs)
10 eggs
10 g (2 heaped tablespoons)
10 ml (2 teaspoons)
adequate

Recipe 2

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour

AMOUNT

300 g (1 standard cup)
300g (2 standard cups)

Baking powder	12 g (3 teaspoons)
Sugar	125 g (½ standard cup)
Margarine or butter	250 g (1 standard cup)
Eggs	3 eggs
Vanilla	5 ml (1 teaspoon)
Lemon rind	5 g (1 heaped tablespoon)
Water or milk	125 ml (½ standard cup)

Recipe 3

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Vanilla
Water

AMOUNT

300 g (1 standard cup)
450 g (3 standard cups)
16 g (4 teaspoons)
150 g (5 level tablespoons)
120 g (6 level tablespoons)
6 eggs
5 g (1 heaped tablespoon)
10 ml (2 teaspoons)
adequate

PROCEDURE FOR ALL QUEEN CAKE RECIPES

- Put sugar to margarine in a bowl, tilt the bowl slightly and use a wooden spoon to beat until mixture turns fluffy with a creamy color.
- Mix separately dry ingredients; wheat flour, baking powder and sweetpotato flour for recipe a, and yeast for recipe a3.
- For recipes b and c, add and rub fresh-grated or boiled mashed sweetpotato to the dry ingredients then mix and knead.
- Beat eggs separately until light/fluffy.
- Concurrently add little at a time the baking flour mixture and beaten egg to creamy mixture while mixing and beating between each addition
- Add milk or water a little at a time to mixture, while mixing and beating until the mixture is smooth, and soft with a dropping consistency.
- Add vanilla/strawberry essence, lemon rind, mixed fruit and mix well.
- Grease queen cake trays.
- Take two tablespoons of the dough mixture and put into queen cake paper placed in each queen cake tray hole.
- Bake the cake dough in hot oven pre-heated at 180°C until brown. This will take about 30 minutes.
- Remove from the tins and place on a rack to cool.

ii) Ordinary/party fruit cakes



Ordinary/party cake incorporating sweetpotato flour and mixed dried fruit

a) Recipes for party/ordinary cakes from sweetpotato flour

Recipe 1

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Vanilla/strawberry essence
Mixed dried cake fruit
Water

AMOUNT

300 g (1 plastic mug)
700 g (2.3 plastic mugs)
15 g (3.8 level teaspoons)
400 g (0.8 plastic mug)
700 g (1.4 plastic mugs)
6 eggs
15 g (3 heaped tablespoons)
10 ml (2 teaspoons)
250 g (1 standard cup)
adequate

Recipe 2

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Salt
Margarine
Eggs
Vanilla
Dried mixed cake fruits
Water

AMOUNT

150 g (1 standard cup)
300 g (2 standard cups)
8 g (2 level teaspoons)
125 g (½ standard cup)
4.0 g (1 teaspoon)
125 g (½ standard cup)
6 eggs
5 ml (1 teaspoon)
125 g (½ standard cup)
adequate

Recipe 3

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Vanilla
Milk

AMOUNT

200 g (1.3 standard cups)
300 g (2 standard cups)
16 g (4 level teaspoons)
250 g (25 level table spoons)
250 g (6.3 heaped tablespoons)
10 eggs
10 ml (2 teaspoons)
400 ml (1.6 standard cups)

PROCEDURE 1 FOR PARTY/ORDINARY CAKES

- a) Place sugar to margarine in a bowl. Tilt the bowl slightly and use a wooden spoon to beat until mixture turns to a creamy color.
- b) Mix or sieve separately wheat flour, baking powder and sweetpotato flour.
- c) Concurrently add little at a time the baking flour mixture and egg to creamy mixture, while mixing and beating between each addition.
- d) Add water, a little at a time to the mixture while mixing and beating to give a smooth, soft dropping consistency
- e) Add dried mixed fruits to the dough and mix well.
- f) Add vanilla/strawberry essence and mix well.
- g) Add lemon rind and mix
- h) Grease the cake tin.
- i) Pour the dough mixture into a slightly greased cake tin.
- j) Bake in hot oven pre-heated at 150°C until brown.
- k) Remove from tin and place on a rack to cool.

PROCEDURE 11 BASED ON OPEN-FIRE BAKING

- a) Pre-heat the charcoal stove (Jiko, Kenya Ceramic Jiko (KCJ) or Maendeleo stove) to baking temperature.
- b) Grease a heavy pan.
- c) Pour cake mixture into the pan and cover the pan with lid.
- d) Remove lit charcoal from stove and spread on top of the lid evenly.
- e) Leave very little lit charcoal in the stove and cover with ash.
- f) Place pan on the ash covered stove.
- g) Keep fire on lid burning by adding twigs (small pieces of wood) for 2 minutes.
- h) Bake for 30 – 40 minutes depending on type of charcoal used.
- i) Test cake with knife by piercing in the middle.
- j) If cake is ready, knife should be dry. If not ready, knife will be wet with uncooked contents.
- k) If cake is ready, remove and cool on a rack.
- l) If not ready, return and replace lid with fire and bake for a while then remove.

3.1.4 Scones



Tea-time triangular scones incorporating sweetpotato flour



Piped scones incorporating boiled and mashed sweetpotato

a) Recipe for scones from sweetpotato flour

Recipe 1: Tea time-triangular scones

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Salt
Fat
Egg
Milk or water
Flavorings
Water

AMOUNT

300 g (2 standard cups)
300 g (2 standard cups)
16 g (4 level teaspoons)
125 g ($\frac{1}{2}$ standard cup)
2 g ($\frac{1}{2}$ teaspoon)
60 g (3 level tablespoons)
1 egg
250 ml (1 standard cup)
2.5 ml ($\frac{1}{2}$ teaspoons)
adequate

PROCEDURE

- Mix the dry ingredients together in a bowl; wheat flour, sweetpotato flour, baking powder, sugar and salt.
- Add and rub fat into the flour mixture.
- Beat eggs separately. Add the beaten egg to the flour mixture and mix.
- Add either milk or water a little at a time into the flour mixture, while kneading the dough until it is smooth, tender and can be rolled.
- Roll the dough into a round shape of $\frac{1}{2}$ inch thickness.
- Divide the dough from the centre into triangular portions.
- Place the portions on greased tin and glaze the top with egg or milk.
- Bake in a hot oven pre-heated at 200°C until light brown. This will take about 15 minutes
- Serve with tea, coffee or juice.

b) Recipe for piped scones from boiled and mashed sweetpotato

Recipe 1: Piped scones

INGREDIENTS

AMOUNT

Boiled and mashed sweetpotato	300 g (1 standard cup)
Wheat flour	150 g (1 standard cup)
Baking powder	8 g (2 level teaspoons)
Salt	4 g (1 level teaspoon)
Sugar	10 g (1 level tablespoon)
Butter or margarine	40 g (2 level tablespoons)
Ground cardamoms/coriander leaves	4 g (1 teaspoon)
Grated cheese (optional)	20 g (1 level tablespoon)
Cream milk or water	125 ml (½ standard cup)

NB: For a sweeter taste, use sugar and flavor with cardamoms. In case of a savory taste, omit the cardamoms and use coriander leaves.

PROCEDURE

- Mix the dry ingredients together in a bowl; wheat flour, baking powder, sugar and salt
- Add, rub and mix boiled and mashed sweetpotato into the flour mixture
- Add grated cheese, butter, coriander, into r mixture and mix
- Add either milk or water a little at a time to the mixture, while kneading until the dough is smooth and can be piped
- Pipe the dough using either a special pipe, a paper cut at the end or an icing bag.
- Grease the baking tin and place on the piped pieces
- Bake in a hot oven pre-heated at 180°C until light brown.
- Serve hot or cold as a snack.

3.1.5 Cookies



Cookies incorporating boiled and mashed sweetpotato



Cookies packed in a plastic film

a) Recipes for cookies from sweetpotato flour

Recipe 1

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Water

AMOUNT

600 g (2 plastic mugs)
1400 g (4.6 plastic mugs)
20 g (5 level teaspoon)
600 g (1.2 plastic mugs)
800 g (1.6 plastic mugs)
8 eggs
10 g (2 heaped tablespoons)
adequate

Recipe 2

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Water

AMOUNT

135 g (0.9 standard cup)
315 g (2.1 standard cups)
8 g (2 level teaspoons)
75 g (7.5 level tablespoons)
150 g (0.6 standard cup)
2 eggs
adequate

Recipe 3

INGREDIENTS

Sweetpotato flour
Cassava flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Water

AMOUNT

150 g (1 standard cup)
125 g (1 standard cup)
4 g (1 teaspoon)
125 g (12.5 level tablespoons)
125 g (½ standard cup)
2 eggs
2 g (½ heaped teaspoon)
adequate

b) Recipe for cookies from fresh-grated sweetpotato

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Water

AMOUNT

400 g (0.6 plastic mug)
1600 g (5.3 plastic mugs)
20 g (5 level teaspoons)
600 g (1.2 plastic mugs)
800 g (1.6 plastic mugs)
6 eggs
10 g (2 heaped tablespoons).
adequate

c) Recipes for cookies from boiled mashed sweetpotato

Recipe 1

INGREDIENTS	AMOUNT
Boiled mashed sweetpotato	800 g (1.3 plastic mugs)
Wheat flour	1200 g (4 plastic mugs)
Baking powder	20 g (5 level teaspoons)
Sugar	400 g (0.8 plastic mug)
Margarine	800 g (1.6 plastic mugs)
Eggs	4 eggs
Lemon rind	2 g (a pinch)
Water	adequate

Recipe 2

INGREDIENTS	AMOUNT
Boiled and mashed sweetpotato	180 g (0.6 standard cup)
Wheat flour	270 g (1.8 standard cup)
Baking powder	8 g (2 level teaspoons)
Sugar	75g (7.5 level tablespoons)
Margarine	150 g (0.6 cup)
Eggs	2 eggs
Water	adequate

PROCEDURE – RUB IN METHOD FOR ALL COOKIE RECIPES

- a) Mix all the dry ingredients together; wheat flour, baking powder, sugar and sweetpotato flour for recipe a.
- b) Add, rub and mix boiled & mashed sweetpotato or fresh-grated sweetpotato into the mixture for recipe b or c.
- c) Rub margarine into the mixture until it is crumbly.
- d) Beat eggs separately, add beaten egg to crumbly mixture, mix and knead the dough until it is smooth, tender and soft.
- e) If the dough is stiff as may be the case for recipe in a) then add water a little at a time, while kneading to make a soft and tender dough.
- f) Leave the dough to relax for about 30 minutes.
- g) Roll dough into 0.2 cm thickness and use a cutter to cut into desired shapes.
- h) Arrange the cut pieces on a greased baking tin
- i) Prick with a fork to make patterns and prevent the dough from rising.
- j) Bake in a hot oven pre-heated at 200°C until brown. This will take about 15 minutes
- k) Remove from the baking tin and leave to cool
- l) Pack cookies in plastic films and heat seal

3.1.6 Biscuits



Sweetpotato coconut biscuits

a). Recipes for cookies from sweetpotato flour

Recipe 1: Sweetpotato coconut biscuits

INGREDIENTS

Sweetpotato flour

Wheat flour

Baking powder

Sugar

Margarine

Grated coconut/groundnuts

Egg

Water

AMOUNT

150 g (1 standard cup)

150 g (1 standard cup)

4 g (1 level teaspoon)

62.5 g ($\frac{1}{4}$ standard cup)

62.5 g ($\frac{1}{4}$ standard cup)

187.5 g ($\frac{3}{4}$ standard cup)

1 egg

adequate

PROCEDURE

- a) Cream sugar and margarine until light and fluffy.
- b) Mix dry ingredients in a bowl; sweetpotato flour, wheat flour, baking powder and the grated coconut.
- c) Beat egg separately in a bowl
- d) Add concurrently little by little the mixture of dry ingredients and beaten egg to the creamy mixture while mixing and beating between each addition
- e) Add water to the mixture and knead until the dough is smooth and tender
- f) Roll the dough on a floured board.
- g) Cut into desired shapes and arrange on greased tray.
- h) Prick with a fork to prevent the dough from rising.
- i) Bake in hot oven pre-heated at 180°C until evenly brown. This will take about 15 minutes
- j) Remove from the tin and leave to cool

Recipe 2: Plain sweetpotato biscuits

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Salt
Margarine
Eggs
Water

AMOUNT

150 g (1 standard cup)
300 g (2 standard cups)
4 g (1 teaspoon)
125 g (12.5 level tablespoons)
4 g (1 level teaspoon)
140 g (7 level tablespoons)
1 egg
adequate

Recipe 3

INGREDIENTS

Sweetpotato flour
Wheat flour
Yeast
Sugar
Margarine
Eggs
Milk
Water

AMOUNT

200g (0.8 standard cup)
300 g (2 standard cups)
8 g (2 level teaspoons)
150 g (15 level tablespoons)
250 g (6.3 heaped tablespoons)
1 egg
20 ml (2 tablespoons)
adequate

PROCEDURE

- a) Whip sugar and margarine together in a bowl until a creamy consistency is obtained for recipe 3
- b) Sift or mix all the dry ingredients in a mixing bowl i.e., wheat flour, sweetpotato flour, baking powder, sugar and yeast for recipe 3.
- c) Add the margarine and rub in the flour mixture till the mixture crumbles for recipe 2.
- d) Beat egg separately add to mixture in c and knead.
- e) Add water a little at a time into the mixture in d, while kneading until a smooth soft dough is formed.
- f) For recipe 3, add the flour mixture and beaten egg concurrently to the creamy mixture, while mixing and beating between additions
- g) Add a little milk and vanilla at a time while kneading until a soft smooth dough is formed
- h) Roll out the dough on a floured board and cut into desired shapes
- h) Arrange the cut pieces on greased baking tin.
- i) Prick with a fork to prevent dough from rising.
- j) Bake in hot oven pre- heated at 180°C until evenly brown. This will take about 15 minutes.
- k) Remove from the tin and leave to cool

3.1.7 Pies



Sweetpotato-chicken pie decorated with salads



Sweetpotato-meat- rice pie

a) Recipes for pies from boiled and mashed sweetpotato

Recipe 1: Sweetpotato-chicken pie

INGREDIENTS

Sweetpotato
Chicken
Chicken stock
Margarine/butter
Mixed spices
Lemon juice
Milk
Egg for glazing
Chopped coriander leaves
Onions
Curry powder
Sweet pepper
Cooked green peas
Crushed garlic
Tomatoes (blanched)
Fat/oil

AMOUNT

2 kg (4 medium-size roots)
1 kg ($\frac{1}{2}$ chicken)
500 g (2 standard cups)
20 g (1 level tablespoons)
4 g (1 level teaspoons)
10 ml (1 tablespoon)
125 ml ($\frac{1}{2}$ standard cup)
50 g (1 egg)
5 g (1 level teaspoon)
20 g (2 medium-size pieces)
4 g (1 level teaspoon)
20 g (2 medium-size pieces)
40 g (2 tablespoons)
2.5 g ($\frac{1}{2}$ teaspoon)
20 g (2 pieces)
40 g (2 level tablespoons)

PROCEDURE

- Cut and place the chicken in a saucepan.
- Add lemon juice, salt, mixed spices, crushed garlic, sweet pepper, curry powder, onions and fat.
- Put some water just to cover the chicken, cover the pan and boil for 10 minutes then lower the heat and simmer until all the water has drained off.
- Pot roast the chicken for a few minutes.
- Add blanched tomatoes, green peas, chicken stock and simmer for a few minutes leaving enough stock.

- f) Boil and mash the sweetpotato in a bowl, add margarine/butter, milk and mix well.
- g) Pour the chicken stew in a casserole or any heatproof aluminum saucepan.
- h) Pour the boiled and mashed sweetpotato paste to cover the chicken stew.
- i) Use a fork to make lines on the sweetpotato paste and dot it with margarine.
- j) Bake (or grill) the chicken pie in a hot oven pre-heated at 180°C until brown.
- k) Decorate with salads.
- l) Serve hot with suitable accompaniment.

b) Recipe for pie made from sweetpotato flour

Recipe 1: Sweetpotato-meat- rice pie

INGREDIENTS

AMOUNT

Sweetpotato flour	150 g (1 standard cup)
Wheat flour	300 g (2 standard cups)
Fat	160 g (8 level tablespoons)
Salt	4 g (1 level teaspoon)
Rice	500 g (2 standard cups)
Coriander	10 g (1 bundle)
Minced beef	½ kg (2 standard cups)
Egg plants	100 g (1 large-size piece)
Onion	50 g (1 medium-size piece)
Tomatoes	200 g (2 medium-size pieces)
Mixed spices	4 g (1 teaspoon)
Milk	250 ml (1 standard cup)
Egg	50 g (1 egg)

PROCEDURE

- a) Prepare coriander, onions, tomatoes and cut into separate containers.
- b) Fry onions with two tablespoons of oil.
- c) Add tomatoes and coriander and cook.
- d) Add minced beef and cook for 20 minutes.
- e) When about ready, add mixed spices and cook for another 10 minutes.
- f) Sort rice, wash once and bring 4 cups of water to boil.
- g) Pour rice in boiling water and add a little salt then cook till there is no water.
- h) Wash eggplants and cut into slices.
- i) Use two tablespoons fat to shallow fry the slices, and arrange in greased baking tin.
- j) Pour the rice on the arranged eggplants.
- k) Pour the beef on the rice and evenly distribute.
- l) Melt the remaining fat and reduce the heat.
- m) Fold the mixed flour into the melted fat, a little at a time and add milk to avoid lumps. The mixture should spread when poured.
- n) Pour the mixture into the beef and spread evenly.
- o) Beat the egg and spread on the pastry.
- p) Bake in hot oven pre-heated at 170°C for 30 minutes.
- q) Remove and serve as a complete meal.

3.1.8 Fish pasties

INGREDIENTS

Sweetpotato flour	150 g (1 standard cup)
Wheat flour	150 g (1 standard cup)
Fat	125 g (½ standard cup)
Eggs	100 g (2 eggs)
Salt	2 g (½ teaspoon)
Chopped fish fillet	1 piece
Diced sweetpotato	150 g (½ standard cup)
Crushed garlic	5 g (1 level teaspoon)
Mixed spices	4 g (1 level teaspoon)
Lemon juice	5 ml (1 teaspoon)
Green chili pepper (optional)	10 g (½ fruit)
Turmeric or curry powder (optional)	4 g (1 level teaspoon)
Chopped coriander leaves	4 g (1 level teaspoon)
Onion	50 g (1 onion)
Fat	20 g (2 level tablespoons)
Green peas	20 g (2 tablespoons)
Salt	4 g (1 level teaspoon)
Water	adequate

AMOUNT

PROCEDURE

- a) Mix wheat flour and sweetpotato flour in a bowl.
- b) Add salt to the flour mixture and mix.
- c) Rub fat into the flour mixture.
- d) Beat eggs separately and add beaten egg to the flour mixture little at a time while mixing and kneading to make dough which can be rolled without sticking. Leave the dough aside to relax for 20 minutes.
- e) Prepare the filling by frying the onion, spices, garlic, chili pepper, turmeric or curry powder.
- f) Add fish, boiled green peas and diced sweetpotato to the fried spices.
- g) Cook the mixture until tender but firm.
- h) Roll the dough and cut it into round shapes.
- i) Fill each molded shape with the cooked mixture, then seal using water.
- j) Place the molded and filled dough on grease baking tins and glaze with beaten eggs.
- k) Bake the dough in a hot oven pre-heated at 180°C until light brown.
- l) Serve as a snack or part of a main meal.

3.1.9 Salted sweetpotato



Baked salted sweetpotato

INGREDIENTS

Sweetpotato roots
Lemon juice
Fat
Salt

AMOUNT

2 kg (4 medium-size roots)
10 ml (1 tablespoon)
120 g (3 heaped tablespoons)
4 g (1 level teaspoon)

PROCEDURE

- Cut the sweetpotato into 1cm thick pieces.
- Mix the pieces of sweetpotato with lemon juice and salt and leave aside for 30 minutes.
- Heat the fat then add the sweetpotato pieces and toss them so that each piece is oiled.
- Either bake in a hot oven pre-heated at 180°C until brown and crisp or deep fry in heated oil.
- Keep turning the pieces every now and then until they are cooked, brown and crisp at the top.
- Serve hot with a sauce as part of the main meal or as a snack

3.2 Sweetpotato fried products

This sub-section presents in detail sweetpotato fried products. The different ingredients and methods used for producing each product are provided. All the products present can be used as snack products for sale or home consumption. The products use wheat flour and different forms of sweetpotato as a major ingredient. Such products include mandazi, doughnuts, chapatti, soya crackies, onion bites, crisps, chips and kabalaga. Other products presented include deep fried products of fresh sweetpotato roots such as crisps and chips.

3.2.1 Mandazi



Mandazi incorporating boiled and mashed sweetpotato on the left and sweetpotato flour on the right

a) Recipe for mandazi from sweetpotato flour

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Cooking oil
Water
Oil for deep frying

AMOUNT

600 g (2 plastic mugs)
1400 g (4.6 plastic mugs)
30 g (7.5 level teaspoons)
130 g (13 level tablespoons)
18 ml (3.6 teaspoons)
adequate
2 liters

b) Recipe for mandazi from fresh-grated sweetpotato .

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Baking powder
Sugar
Cooking oil
Water
Oil for deep frying

AMOUNT

800 g (1.3 plastic mugs)
1200 g (4 plastic mugs)
35 g (8.8 level teaspoons)
130 g (13 level tablespoons)
14 ml (2.8 teaspoons)
adequate
2 liters

c) Recipe for mandazi from boiled and mashed sweetpotato

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Baking powder
Sugar
Cooking oil
Water
Oil for deep frying

AMOUNT

1200 g (2 plastic mugs)
800 g (2.6 plastic mugs)
35 g (8.8 level teaspoons)
100 g (10 level tablespoons)
14 ml (2.8 teaspoons)
adequate
2 liters

PROCEDURE

- a) Mix or sieve the dry ingredients in a bowl; wheat flour, sweetpotato flour, baking powder and sugar).
- b) Add, rub and mix grated or boiled and mashed sweetpotato to the dry ingredients for recipe b and c.
- c) Make a well in the center of the mixture, add oil and mix well.
- d) Add water a little at a time while mixing and kneading until the dough is nonsticky, soft and smooth
- e) Leave the dough to relax for a minimum of 45 minutes for recipes a and b, and 1 hour for recipe c.
- f) Knead the dough again the roll on a floured board into a thickness of 0.5 cm.
- g) Cut the dough into desired shapes.
- h) Deep fry pieces in hot oil pre-heated at 160°C for about 5-6 minutes by turning them round until both sides have turned golden brown.
- i) Remove the doughnuts from hot oil and leave to cool.

3.2.2 Doughnuts



Doughnuts incorporating boiled and mashed sweetpotato



Doughnuts incorporating sweetpotato flour

a) Recipes for doughnuts from sweetpotato flour

Recipe 1

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Milk/water
Oil for deep frying

AMOUNT

1000 g (3.3 plastic mugs)
1000 g (3.3 plastic mugs)
30 g (7.5 level teaspoons)
400 g (40 level tablespoons)
160 g (4 heaped tablespoons)
9 eggs
10 g (2 heaped tablespoons)
adequate
2 liters

Recipe 2

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Fat
Eggs
Cinnamon/cardamom
Milk/water
Oil for deep frying

AMOUNT

300 g (2 standard cups)
300 g (2 standard cups)
12 g (3 level teaspoons)
125 g (12.5 level tablespoons)
40 g (2 level tablespoons)
3 eggs
2 g ($\frac{1}{2}$ teaspoon)
250 ml (1 standard cup)
1 liter

b) Recipes for doughnuts from boiled and mashed sweetpotato

Recipe 1

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Milk/water
Oil for deep frying

AMOUNT

600 g (1 plastic mug)
1400 g (4.2 plastic mugs)
30 g (7.5 level teaspoons)
300 g (30 level tablespoons)
120 g (3 heaped tablespoons)
4 eggs
10 g (2 heaped tablespoons)
adequate
2 liters

Recipe 2

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Baking powder
Sugar
Eggs
Fat
Milk/water
Oil for deep frying

AMOUNT

600 g (2 standard cups)
300 g (2 standard cups)
2 g ($\frac{1}{2}$ teaspoon)
40 g (4 level tablespoons)
4 eggs
250 g (1 standard cup)
250 ml (1 standard cup)
1 liter

c) Recipe for doughnuts from fresh-grated sweetpotato

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Baking powder
Sugar
Margarine
Eggs
Lemon rind
Milk/water
Oil for deep frying

AMOUNT

600 g (1 plastic mug)
1400 g (4.2 plastic mugs)
30 g (7.5 level teaspoons)
300 g (30 level tablespoons)
120 g (3 heaped tablespoons)
4 eggs
10 g (2 heaped tablespoons)
adequate
2 liters

PROCEDURE

- Mix all the dry ingredients together in a bowl; wheat flour, sweetpotato flour for recipe a, baking powder and sugar and cinnamon/cardamom.
- Add the rub and mix boiled and mashed sweetpotato to the flour mixture for recipe a and fresh-grated sweetpotato for recipe c.
- Add and rub fat/margarine in the mixture.
- Beat eggs separately, add beaten egg little at a time to the mixture while mixing and kneading.
- Add water or milk a little at a time into the dough, while kneading until a smooth, not sticky and soft dough is formed
- Roll the dough into a thin thickness and use a doughnut cutter to cut the dough into doughnut shapes
- Fry the cut pieces of doughnuts in oil pre-heated oil at 160 °C until light brown color.
- Drain the doughnuts from the oil and serve them hot or cool.

3.2.3 Chapatti



Chapatti incorporating boiled and mashed sweetpotato on the left and sweetpotato flour on the right



Cut pieces of chapatti incorporating and sweetpotato flour, left and boiled and mashed sweetpotato, right



Chapatti incorporating fresh-grated sweetpotato

a) Recipe for chapatti from sweetpotato flour

INGREDIENTS

Sweetpotato flour
Wheat flour
Salt
Oil
Water
Oil for shallow frying

AMOUNT

600 g (2 plastic mugs)
1400 g (4.6 plastic mugs)
18.5 g (4.6 level teaspoons)
40 ml (4 tablespoons)
adequate
0.5 liters (1 plastic mug)

b) Recipes for chapatti from boiled and mashed sweetpotato

Recipe 1

INGREDIENTS

Boiled mashed sweetpotato
Wheat flour
Salt
Oil
Water
Oil for shallow frying

AMOUNT

1000 g (1.6 plastic mugs)
1000 g (3.3 plastic mugs)
18.5 g (4.6 level teaspoons)
30 ml (3 tablespoons)
adequate
0.5 liters (1 plastic mug)

Recipe 2

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Soya flour
Salt
Lukewarm water
Oil for shallow frying

AMOUNT

300 g (1 standard cup)
300 g (2 standard cups)
125 g ($\frac{1}{2}$ standard cup)
4 g (1 level teaspoon)
adequate
125 ml ($\frac{1}{2}$ standard cup)

c) Recipes for chapatti from fresh-grated sweetpotato.

Recipe 1

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Salt
Oil
Water
Oil for shallow frying

AMOUNT

800 g (1.3 plastic mugs)
1200 g (4 plastic mugs)
18.5 g (4.6 level teaspoons)
40 ml (2 tablespoons)
adequate
0.5 liters (1 plastic mug)

Recipe 2

INGREDIENTS

Fresh-grated sweetpotato
Wheat flour
Soya flour
Salt
Lukewarm water
Oil for shallow frying

AMOUNT

300 g (1 standard cup)
300 g (2 standard cups)
125 g (½ standard cup)
4 g (1 level teaspoon)
adequate
125 ml (½ standard cup)

PROCEDURE

- a) Mix dry ingredients together in a bowl ; wheat flour, salt, sweetpotato flour for recipe a, and soya flour for recipe c 2.
- b) Add, rub and mix boiled and mashed sweetpotato for recipe b or fresh-grated sweetpotato for recipe c.
- c) Add the oil and mix.
- d) Add water a little at a time, while kneading until a soft, smooth and nonsticky dough is formed.
- e) Cover the soft dough with plastic sheet and leave it to relax for about 30 minutes.
- f) Divide the dough into small portions and mould the portions into small balls.
- g) Either roll out the balls on a floured pastry board into a large thin circle ready for frying or fold each ball into a strip
- h) Coil each strip to form a circle and put aside for 20 minutes.
- i) On a floured pastry board, roll out each coil into a large thin circle.
- j) Rub a little oil on a frying pan and heat it for shallow frying.
- k) Place each large piece, one at a time, in pre-heated oil and keep turning on either side until it is golden brown.
- l) Alternatively, the large thin circles can be deep fried by using a larger amount of oil pre-heated in a frying pan.
- m) When ready, pack the warm chapatti in polyethylene film to avoid hardening.

3.2.4 Kabalagala



Kabalagala incorporating sweetpotato flour and mashed sweetpotato



Kabalagala incorporating boiled and mashed sweetpotato

a) Recipe for kabalagala from sweetpotato flour

INGREDIENTS

Sweetpotato flour

Apple bananas

Oil

Water

Oil for deep frying

AMOUNT

2000 g (6.6 plastic mugs)

3000 g (4 medium-size clusters)

40 ml (4 tablespoons)

adequate

2 liters (4 plastic mugs)

b) Recipe for kabalagala from boiled mashed sweetpotato

INGREDIENTS

Boiled mashed sweetpotato

Cassava flour

Apple bananas

Oil

Water

Oil for deep frying

AMOUNT

1200 g (2 plastic mugs)

800 g (3.2 plastic mugs)

1000 g (1¼ medium-size clusters)

20 ml (2 tablespoons)

adequate

2 liters (4 plastic mugs)

PROCEDURE

- Peel ripe apple bananas and place in a bowl.
- Add to the peeled bananas sweetpotato flour for recipe a or boiled mashed sweetpotato for recipe b a little at a time, while mixing and kneading.
- Make a well in the center of the dough, add the oil and knead.
- Add a little water if necessary to soften the dough.
- Knead the dough until it is soft and smooth.
- Roll the dough on a floured board into a thickness of 0.6 cm
- Cut the dough into small round shapes.
- Deep fry in hot oil pre-heated at 160°C turning either side until it is brown.
- Remove from the oil and leave to cool.

3.2.5 Pancakes

INGREDIENTS

Sweetpotato flour
Wheat flour
Baking powder
Sugar
Egg
Water
Cooking oil for shallow frying

AMOUNT

75 g ($\frac{1}{2}$ standard cup)
225 g ($1\frac{1}{2}$ standard cups)
4 g (1 level teaspoon)
2.5 g ($\frac{1}{2}$ teaspoon)
1 egg
adequate
adequate

PROCEDURE

- Sieve all the wheat flour, sweetpotato flour and baking powder in a bowl.
- Add sugar and mix.
- Beat egg in a cup and mix in the flour mixture.
- Add water and mix to a light consistency and leave it to relax for ten minutes.
- Put a little oil in pre-warmed frying pan and heat.
- Pour a little of the mixture in the pan, let it spread and cook.
- Turn the other side, add a little oil and let it cook until slightly brown.
- Remove the ready pancake.
- Again pour a little of the remaining mixture in little oil heated in a frying pan.
- Follow the same procedure of frying till all the dough mixture is finished.
- Serve warm.

3.2.6 Bhajia



Bhajia incorporating fresh boiled roots

INGREDIENTS

Sweetpotato roots
Soya flour
Wheat flour
Salt
Chili pepper

AMOUNT

2 kg (4 medium-size roots)
10 g (1 level tablespoon)
40 g (4 level tablespoons)
4 g (1 level teaspoon)
4 g (1 teaspoon)

Water
Cooking oil for deep frying

adequate
 $\frac{1}{2}$ liter (2 standard cups)

PROCEDURE

- a) Peel the roots, wash, and boil till ready but firm.
- b) Remove and slice into desired shapes of $\frac{1}{2}$ centimeter width each.
- c) Make a thin paste by mixing the wheat and soya flour with salt, chili powder and water.
- d) Dip-boil roots in the paste, deep fry till done.
- e) Drain excess oil and serve hot with sauce.

3.2.7 Soya crackies



Soya crackies incorporating sweetpotato flour

a) Recipe for soya crackies from sweetpotato flour

INGREDIENTS

Sweetpotato flour
Wheat flour
Soya flour
Baking powder
Margarine
Eggs (optional)
Salt
Mixed spices
Warm water
Oil for deep frying

AMOUNT

300 g (2 standard cups)
300 g (2 standard cups)
75 g ($\frac{1}{2}$ standard cup)
8 g (2 level teaspoons)
80 g (2 heaped tablespoons)
1 egg
4 g (1 level teaspoon)
4 g (1 level teaspoon)
adequate
adequate

b) Recipe for soya crackies from boiled and mashed sweetpotato

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Soya flour
Baking powder
Margarine
Eggs (optional)
Salt
Spices
Warm water
Oil for deep frying

AMOUNT

600 g (2 standard cups)
300 g (2 standard cups)
75 g ($\frac{1}{2}$ standard cup)
8 g (2 level teaspoons)
80 g (2 heaped tablespoons)
1 egg
4 g (1 level teaspoon)
4 g (1 level teaspoon)
adequate
adequate

PROCEDURE

- a) Sift all dry ingredients including wheat flour, soya flour, baking powder and sweetpotato flour for recipe a into a mixing bowl.
- b) Add salt, spices and mix.
- c) Add, rub and mix boiled and mashed sweetpotato to the flour mixture for recipe b
- d) Add and rub-in margarine in the mixture
- e) Whisk the eggs, add and mix beaten egg into the mixture
- f) Knead the stiff dough
- g) Add a little warm water if the dough is hard knead until a smooth, non-sticky dough is formed.
- h) Pack the dough in noodle machine.
- i) Turn the handle of the noodle machine to drop strips of the dough into pre-heated oil to fry.
- j) Turn the pieces until they are golden brown.
- k) Remove fried pieces from the oil, drain excess oil and allow to cool.

3.2.8 Onion bites



Onion bites incorporating boiled and mashed sweetpotato

INGREDIENTS

Boiled and mashed sweetpotato
Wheat flour
Baking powder
Chili pepper
Salt
Cooking fat
Spring onion leaves
Water
Oil for deep frying

AMOUNT

300 g (1 standard cup)
300 g (2 standard cups)
12 g (3 level teaspoons)
4.5 g ($\frac{3}{4}$ teaspoon)
4 g (1 level teaspoon)
5 g (1 level teaspoon)
10 g ($\frac{1}{2}$ standard cup)
adequate
adequate

PROCEDURE

- a) Sift wheat flour and baking powder into a mixing bowl.
- b) Add salt, pepper and mix.
- c) Pound the onions, add to the contents in the bowl and mix.
- d) Add boiled and mashed sweetpotato, cooking fat and mix in the contents of the bowl.
- e) Add a little water at a time and knead into dough of light texture.
- f) Leave the dough to relax for 10-15 minutes.
- g) Mould the dough into small sized balls.
- h) Heat oil in a pan.
- i) Drop the balls into the hot oil to fry.
- j) Keep turning until the balls turn brown.
- k) Remove the fried onion bite from the oil and drain excess oil.

3.2.9 Chinchin



Chinchin incorporating sweetpotato flour

INGREDIENTS

Sweetpotato flour
Wheat flour
Soya flour
Baking powder
Sugar
Margarine
Egg (optional)
Warm water
Oil for deep frying

AMOUNT

450 g (1½ plastic mugs)
300 g (1 plastic mug)
75 g (¼ standard cup)
12 g (3 level teaspoons)
30 g (3 level tablespoons)
140 g (4 heaped tablespoons)
1 egg
adequate
1 liter (2 plastic mugs)

PROCEDURE

- Mix dry ingredients together in a bowl; wheat flour, sweetpotato flour, soya flour and sugar.
- Add and rub margarine into the flour mixture.
- Beat eggs separately; add beaten egg to the contents in bowl and mix.
- Add warm water a little at a time to the mixture and knead to smooth soft dough.
- Roll the dough on floured surface into a thin circle of about 1 centimeter thickness.
- Cut the rolled dough into thin strings.
- Cut the long strings either into small round shapes or square pieces.
- Deep fry the cut pieces in pre-heated oil until brown and crunchy. Keep turning the pieces, while frying.
- Remove from oil and drain excess oil.

3.2.10 Bagia



Rotate the machine to release the dough threads into a wire mesh basket



Ready-to- eat bagia



Bagia packed in plastic films

INGREDIENTS

Sweetpotato flour
Pigeon pea flour
Salt
Margarine
Eggs
Curry powder
Mixed spices
Garlic powder
Water
Oil for deep frying

AMOUNT

600 g (2 plastic mugs)
600 g (2 plastic mugs)
4 g (1 teaspoon)
20 g (1 level tablespoon)
2 eggs
8 g (2 level teaspoons)
12 g (3 level teaspoons)
12 g (4 level teaspoons)
adequate
2 liters (4 plastic mugs)

PROCEDURE

- a) Mix all the dry ingredients together in a bowl; sweetpotato flour, pigeon pea flour, salt, curry powder, mixed spices and garlic powder.
- b) Add and rub margarine in the flour mixture.
- c) Beat egg separately, add beaten egg and mix in the mixture
- d) Add water a little at a time to the mixture while mixing and kneading to make very soft dough
- e) Cover the dough with plastic sheet and leave to relax for 30 minutes.
- f) Scoop a little dough into a bagia extruder/machine.
- g) Rotate the machine to release the dough threads into a wire mesh basket.
- h) Dip the wire mesh basket into pre-heated oil and deep fry till the thin threads until they turn golden brown.
- i) Remove and drain excess oil.
- j) Cool and pack in airtight plastic film.

3.2.11 Banana fritters



Banana fritters incorporating sweetpotato flour

INGREDIENTS

Sweetpotato flour
Ripe mashed banana
Peanut paste (Nutmeg)
Cooking oil
Egg
Salt
Baking powder
Chili powder
Oil for deep frying

AMOUNT

150 g (1 standard cup)
300 g (1 standard cup)
2.5 g ($\frac{1}{2}$ teaspoon)
250 ml (1 standard cup)
1 egg
4 g (1 level teaspoon)
2 g ($\frac{1}{2}$ teaspoon)
4 g (1 level teaspoon)
adequate

PROCEDURE

- a) Peel banana and mash.
- b) Sift and mix in all the dry ingredients in a bowl i.e., sweetpotato flour, baking powder and chili powder and add to mashed banana.
- c) Beat the egg separately, add beaten egg to the ingredients and mix well into a light dough.
- d) Drop the dough mixture by spoonfuls into pre-heated oil in a pan and fry until golden brown on both sides.
- e) Drain from oil and serve warm or cool.

3.2.12 Cocktail titbits



Cocktail titbits incorporating sweetpotato flour

INGREDIENTS

Sweetpotato flour
Wheat flour
Cowpea flour
Egg white
Baking powder
Salt
Onion (ground)
Cooking oil

AMOUNT

150 g (1 standard cup)
75 g ($\frac{1}{2}$ standard cup)
75 g (1 standard cup)
2 eggs
4 g (1 level teaspoon)
4 g (1 level teaspoon)
4 g (1 level teaspoon)
 $\frac{3}{4}$ liters (3 standard cups)

PROCEDURE

- Mix the dry ingredients together; cow pea flour, sweetpotato flour, baking powder and salt.
- Add the ground onion to the flour mixture.
- Beat egg white until fluffy, add to the mixture and mix.
- Add water a little at a time to the mixture, while kneading to make a smooth and soft dough.
- Roll the dough thinly and cut into desired shapes.
- Deep fry in pre-heated oil until brown
- Remove when ready and drain excess oil.

3.2.13 Sweetpotato Crisps



Use a hand slicer to cut peeled sweetpotato roots into thin slices



Place the sliced pieces in a wire mesh basket



Ready-to-eat sweetpotato crisps



sweetpotato crisps packed in a plastic film

INGREDIENTS

Sweetpotato roots
Salt
Oil for deep frying

AMOUNT

4 kg (8 medium-size roots)
16 g (4 level teaspoons)
4 liters (8 plastic mugs)

PROCEDURE

- a) Peel and wash sweetpotato roots.
- b) Use either a hand slicer, a hand grater or a manual chipper to slice the washed roots into desired shapes of 0.2 cm- 0.3 cm thickness.
- c) Wash off excess starch from the sliced pieces.
- d) Remove excess water from the surface by either drying in the sun for a short time or by using absorbent paper.
- e) Place the sliced pieces into a wire mesh basket.
- f) Deep fry the slices in hot oil at 160°C, while turning slices until bubbles cease and slices begin to turn brown.
- g) Remove when ready and drain excess oil.
- h) Salt or spice while still warm.
- i) Pack in plastic film.

3.2.14 Sweetpotato Chips



Ready-to-eat sweetpotato chips made using orange and yellow fleshed sweetpotato varieties

INGREDIENTS

Sweetpotato roots

Salt

Cooking oil

AMOUNT

1 kg (2 medium-size roots)

10 g (2.5 level teaspoons).

1 liter (2 plastic mugs).

PROCEDURE

- a) Peel and wash the sweetpotato roots.
- b) Slice the washed roots into slices of about 30 to 50 cm thickness.
- c) Wash off excess starch from the sliced roots.
- d) Deep fry in pre-heated oil in a pan at 160°C turning them round until they are brownish in color.
- e) Remove from the oil and leave to cool.

3.2.15 Sweetpotato Balls



Cheese balls incorporating boiled and mashed sweetpotato



Meat balls incorporating boiled and mashed sweetpotato

a) Recipes for balls from boiled and mashed sweetpotato

Recipe 1: Cheese balls

INGREDIENTS

Boiled and mashed sweetpotato
Lemon juice (optional)
Chopped coriander leaves
Ground black pepper
Grated cheese
Crushed garlic
Eggs
Salt
Breadcrumbs
Oil for shallow frying

AMOUNT

300 g (2 standard cups)
5 ml (1 teaspoon)
3 g ($\frac{1}{2}$ teaspoon)
3 g ($\frac{1}{2}$ teaspoon)
20 g (1 tablespoon)
5 g (1 teaspoon)
2 eggs
4 g (1 teaspoon)
100 g (1 standard cup)
adequate

PROCEDURE

- Mix coriander leaves, black pepper, grated cheese, salt, and lemon juice.
- Add and rub boiled and mashed sweetpotato into the mixture.
- Beat one egg, add beaten egg to the mixture mix and knead into soft smooth dough.
- Shape the dough into small balls.
- Beat the remaining egg, mix with breadcrumbs and coat on the balls.
- Fry the balls in pre-heated oil until light brown.
- Remove from oil and leave to cool.
- Serve them with a suitable sauce on a bed of salad.

Recipe 2: Meat balls

INGREDIENTS

Boiled and mashed sweetpotato
Mixed spices
Milk
Lemon juice
Ground black pepper
Ginger
Eggs
Bread crumbs
Crushed garlic
Chopped coriander leaves
Minced meat
Chopped onion
Breadcrumbs
Sweet pepper
Curry powder (optional)
Tomato paste (optional)
Mustard sauce (optional)
Salt and pepper to taste
Oil for shallow frying

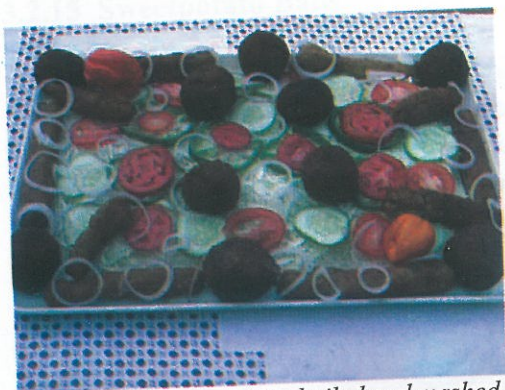
AMOUNT

600 g (2 standard cups)
4 g (1 level teaspoon)
125 ml ($\frac{1}{2}$ standard cup)
5 ml (1 teaspoon)
2 g ($\frac{1}{2}$ teaspoon)
2 g ($\frac{1}{2}$ teaspoon)
3 eggs
20 g (3 pieces)
5 g (1 level teaspoon)
4 g (1 level teaspoon)
250 g (1 standard cup)
1 medium size
150 g (1 standard cup)
2.5 g ($\frac{1}{2}$ teaspoon)
2 g ($\frac{1}{2}$ teaspoon)
10 ml (1 level tablespoon)
10 ml (1 level tablespoon)
adequate
adequate

PROCEDURE.

- a) Mix salt and ground pepper.
- b) Add and rub boiled and mashed sweetpotato to the salt mixture.
- c) Beat one egg, add beaten egg to the mixture and mix.
- d) Add milk and knead the mixture into smooth and soft dough. Put aside.
- e) Fry chopped onions and sweet pepper, add mixed spices, ginger, curry powder, mustard sauce, lemon and minced meat to the frying onions and cook until ready.
- f) Add tomato paste, salt and pepper to taste and leave aside to cool.
- g) Prepare meat balls by using portions of the sweetpotato dough to completely cover small quantities of the fried, minced meat mixture.
- h) Prepare a mixture of two beaten eggs and breadcrumbs and use it to coat the sweetpotato balls.
- i) Fry the sweetpotato balls in pre-heated oil until light brown.
- j) Serve as a snack, or as part of the main meal.

3.2.16 Croquettes



Croquettes incorporating boiled and mashed sweetpotato served on a bed of salads

INGREDIENTS

Boiled and mashed sweetpotato
Mixed spices
Crushed garlic
Chopped coriander leaves
Eggs
Ground black pepper
Breadcrumbs
Oil
Salt
Pepper

AMOUNT

600 g (2 standard cups)
4 g (1 level teaspoon)
5 g (1 level teaspoon)
4 g (1 level teaspoon)
2 eggs
2 g ($\frac{1}{2}$ teaspoon)
75 g ($\frac{1}{2}$ standard cup)
125 ml (1 standard cup)
4 g (1 level teaspoon)
4 g (1 level teaspoon)

PROCEDURE

- Mix crushed garlic, mixed spices, chopped coriander leaves, ground black pepper, salt and pepper in a bowl.
- Add and rub boiled and mashed sweetpotato to the mixture.
- Soak and squeeze the bread pieces in the sweetpotato mixture and mix well.
- Beat eggs separately and add just enough beaten egg to bind the mixture together leaving some for coating.
- Mould the mixture into small balls or finger like shapes.
- Coat the small balls with a mixture of egg and breadcrumbs.
- Fry the croquettes in pre-heated oil till light brown.
- Serve on a bed of salad.

3.3 Sweetpotato roasted products

3.3.1 Sweetpotato-meat barbecue



Skew sweetpotato slices alternately with meat, onions and sweet pepper on a skewer before roasting



Barbecue the sweetpotato and meat on a rack over a hot charcoal stove



Ready-to-eat sweetpotato-meat barbecue

INGREDIENTS

Sweetpotato roots
Fillet meat
Lemon juice or vinegar
Mixed spices
Oil
Mustard sauce (optional)
Crushed garlic
Ground black pepper
Sweet peppers
Crushed ginger
Onions
Salt and pepper
Roasting sticks

AMOUNT

1 kg (2 medium-size roots)
 $\frac{1}{4}$ kg
10 ml (1 tablespoon)
4 g (1 level teaspoon)
10 ml (1 tablespoon)
5 ml (1 teaspoon)
5 g (1 level teaspoon)
 $\frac{1}{2}$ teaspoon
2 medium-sized
5 g (1 level teaspoon)
2 medium-size
4 g (1 level teaspoon)
6 skewers

PROCEDURE

- a) Parboil the sweetpotatoes in their jacket until half-cooked.
- b) Mix lemon juice, garlic, mixed spices, mustard sauce, black pepper, oil, ginger, salt and pepper.
- c) Cut meat into pieces and soak (marinate) it for 30 minutes in the lemon juice mixture.
- d) Chop sweet pepper and the onion into pieces that can be skewered.
- e) Peel and cut the parboiled sweetpotato into slices, which can be skewered.
- f) Arrange alternately the chopped onion, sweet pepper, sweetpotato slices and marinated meat on a skewer (roasting stick) and brush with oil.
- g) Barbecue the sweetpotato and meat in a grill or on a rack over a hot charcoal.
- h) Serve hot as a snack or part of the main meal.

3.4 Sweetpotato preserves

In this sub-section, new recipes for sweetpotato products that are produced by boiling cooked and mashed sweetpotato with sugar syrup and other ingredients are presented. The products include sweetpotato jam, ketchup and juices. Sweetpotato jam and juices are preserved with citric acid and the natural acidity of lemon juice whereas ketchup is preserved with vinegar. Different types of juices presented in this section are preserved in two different ways: firstly by pasteurization and the natural acidity of lemon juice added; secondly by adding citric acid to give low pH levels. Adding hot syrup to the pasteurized sweetpotato juice reduces the time that the juice is heated and the color, flavor and vitamins are better preserved. Passion or pineapple juices are added to give fruit flavor to the sweetpotato juice. If these juices are properly processed and stored, unopened bottles can have a shelf life of more than three months. There may therefore be no need for use of chemical preservatives such as sodium benzoate, especially if the juices are processed on a small-scale with simple cheap equipment such as in rural areas. Orange fleshed sweetpotato varieties that are rich in pro-vitamin A are recommended for use in processing the sweetpotato juices.

3.4.1 Jam



Sweetpotato Jam.

INGREDIENTS

Boiled and mashed sweetpotato
Ripe sweet bananas
Sugar
Citric acid
Pectin
Water

AMOUNT

200 g ($\frac{1}{3}$ plastic mug)
150 g (3 banana fingers)
300 g (30 level tablespoons)
3 g (1 level teaspoon)
2 g ($\frac{1}{2}$ level teaspoon)
340 ml (0.7 plastic cup).

PROCEDURE

- Blend the boiled sweetpotato root with sweet bananas, citric acid and water.
- Boil the blended mixture.
- Add sugar to the boiling mixture, continue stirring.
- Mix pectin in a little warm water to dissolve and add and mix the solution in the mixture while still on fire.
- Boil the slurry until it reduces volume by almost a half.
- Pour the hot slurry in a bottle jam and seal.
- Leave to cool and label bottles.

3.4.2 Ketchup



Sweetpotato Ketchup

INGREDIENTS

Sweetpotato roots
Water
Vinegar
Sugar
Salt
Chopped ginger
Chopped onions
Chili pepper
Pepper
Cayenne pepper
Food color (red)
Food color (orange)

AMOUNT

1.5 kg (3 medium-size roots)
1.0 liter (2 plastic mugs)
1.0 liter (2 plastic mugs)
500 g (1 plastic mug)
4 g (1 level teaspoon)
10 g (2 level teaspoons)
7.0 g (1.4 level teaspoons)
2.0 g ($\frac{1}{2}$ teaspoon)
2.0 g ($\frac{1}{2}$ teaspoon)
2.0 g ($\frac{1}{2}$ teaspoon)
2.0 g ($\frac{1}{2}$ teaspoon)
2.0 g ($\frac{1}{2}$ teaspoon)

PROCEDURE

- Peel and boil the sweetpotato roots
- Blend the boiled sweetpotatoes with all the remaining ingredients including the water.
- Boil the mixture, while stirring until it gets to the desired consistency/thickness
- Pour the hot mixture in a bottle and seal.
- Leave to cool and label bottles.

3.4.3 Juices



*Sweetpotato juice
concentrate*

Sweetpotato leaf juice

*Ready- to-drink sweetpotato
juice*

a) Recipes for pasteurized sweetpotato juices

Recipe 1: Juice concentrate

INGREDIENTS

Boiled and mashed orange fleshed sweetpotato
Sugar
Lemon juice
Pineapple/ passion fruit juice or both
Water

AMOUNT

1.8 kg (3 plastic mugs)
1 kg (2 plastic mugs)
240 ml (24 tablespoons).
300 ml (30 tablespoons)
5 liters (10 plastic mugs).

Recipe 2: Ready-to-drink juice

INGREDIENTS

Boiled and mashed orange fleshed sweetpotato
Sugar
Lemon juice
Pineapple/ passion fruit juice or both
Water

AMOUNT

1.8 kg (3 plastic mugs)
1 kg (2 plastic mugs)
240 ml (24 tablespoons).
300 ml (30 tablespoons)
6 liters (12 plastic mugs).

PROCEDURE

- a) Mix the boiled and mashed sweetpotato with two liters of water and filter using a fine muslin cloth to produce clear juice.
- b) Add lemon and pineapple/passion fruit juice to the filtered sweetpotato juice.
- c) Add sugar to the remaining water, mix and boil the solution in aluminum pan to make sugar syrup.
- d) Pour the hot sugar syrup onto the filtered sweetpotato, lemon and pineapple/passion fruit juice mixtures and mix.
- e) Heat the juice- syrup mixture in a stainless steel pan to nearly boiling point (80-90°C).
- f) Fill the hot juice in pre-sterilized bottles, plastic pots or sachets and seal.
- g) Cool the juice to room temperature by lying bottles on their side on a table.
- h) Label the bottles.
- i) To drink the juice concentrate, dilute the juice to taste with water.

Recipe 3: Ready-to-drink leaf juice

INGREDIENTS	AMOUNT
Young sweetpotato leaves	200 g (2 handfuls)
Sugar	120 g (12 level tablespoons)
Lemon juice	10 ml (1 tablespoon)
Pineapple or passion fruit juice	120 ml (12 tablespoons)
Orange food color	2 g (0.5 level teaspoons)
Water	2 liters (4 plastic mugs).

PROCEDURE

- a) Add sugar to water, mix and boil solution in a clean stainless pan.
- b) Add the sweetpotato leaves to the boiling sugar solution and leave for 5 minutes to extract nutrients then remove the leaves from the syrup.
- c) Leave the leaf extract and sugar syrup to cool, then add lemon and pineapple/fruit juice to cooled extract, mix and filter.
- d) Add food color to filtered juice and heat until near boiling point (80-90 °C)
- e) Remove the juice from fire and fill the hot juice in bottles.
- f) Cool to room temperature by lying bottles on their side on a table.
- g) Label the bottles.

b) Recipe for citric acid preserved juice

INGREDIENTS	AMOUNT
Sweetpotato roots	4 kg (8 medium-size roots)
Sugar	1 kg (4 standard cups)
Citric acid	12 g (3 teaspoons)
Water	5 liters (20 standard cups)
Fruit flavor (optional)	5 ml (1 teaspoon)

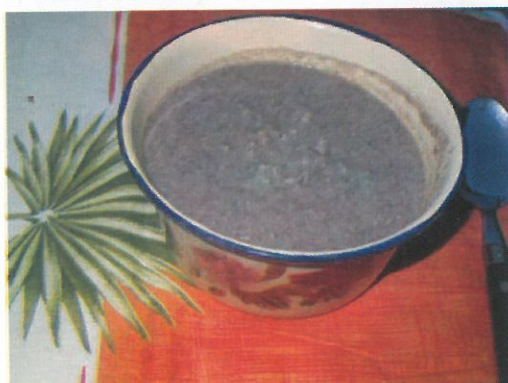
PROCEDURE

- a) Boil water and sugar and leave to cool.
- b) Boil and mash sweetpotato roots or blend the boiled roots and mix with water, then sieve.
- c) Add citric acid and fruit flavor if need be and mix well.
- d) Pour in a jug, chill if possible and serve cold as fresh juice.

3.5 Sweetpotato Weaning food products

In this sub-section, weaning food products incorporating boiled mashed and flour produced from orange-fleshed sweetpotato varieties are presented. The products include thin porridge prepared from different types of sweetpotato composite flour and sweetpotato mashes. These products can be prepared at household level by mothers to give to their children as breast milk supplements. Porridge products can also be used by adults for various purposes. Sweetpotato roots with low dry matter are most suitable for preparation of the sweetpotato mixed mashes. Besides preparation at household level, sweetpotato composite flours can also be processed commercially by flour milling industries (sec 1.2.1). Commercial formulations developed in Uganda for different sweetpotato composite flours that can be used to prepare different weaning food (porridge) products are provided.

3.5.1 Porridge



Sweetpotato-millet-soya bean porridge

a) Recipe for porridge for household use from sweetpotato composite flour

Recipe 1: Sweetpotato-millet-soybean porridge.

INGREDIENTS

Sweetpotato flour
Millet flour
Soya bean flour
Lemon
Sugar
Water

AMOUNT

15 g (1 heaped tablespoon)
60 g (4 heaped tablespoons)
15 g (1 heaped tablespoon)
1 small-size
20 g (2 level tablespoons)
1.25 Liters (5 standard cups)

PROCEDURE

- a) Mix the sweetpotato, millet and soya bean flours.
- b) Add one cup of water to the flour mixture and mix to make a thick paste
- c) Boil the remaining four cups of water
- d) Pour the thick paste into the boiling water, while stirring to prevent formation of lumps.
- e) Make juice from the lemon, while porridge is boiling.
- f) The product will thicken when ready and this will take about 20 minutes.
- g) Remove from fire, add lemon juice, sugar and mix well.
- h) Serve when warm.

b) Formulations for commercially produced sweetpotato composite flours for porridge products

Formulation 1: Sweetpotato-maize-soybean composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	30 %
Maize flour	35 %
Soya bean flour	35 %

Formulation 2: Sweetpotato-maize-amaranthus composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	30 %
Maize flour	35 %
Amaranthus flour	35 %

Formulation 3: Sweetpotato-maize-groundnut composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	25 %
Maize flour	50 %
Groundnut flour	25 %

Formulation 4: Sweetpotato-millet-soyabeen composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	35 %
Millet flour	30 %
Soya bean flour	35 %

Formulation 5: Sweetpotato-millet-amaranthus composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	35 %
Millet flour	30 %
Amaranthus flour	35 %

Formulation 6: Sweetpotato-millet-groundnut composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	30 %
Millet flour	40 %
Groundnut flour	30 %

Formulation 7: Sweetpotato-soya composite flours

INGREDIENTS	PROPORTION
Sweetpotato flour	50%
Soya flour	50%

PROCEDURE FOR PREPARATION OF PORRIDGE FROM THE DIFFERENT TYPES OF COMMERCIALY PRODUCED COMPOSITE FLOURS

- a) Put six heaped table spoons of the composite flour in a sauce pan.
- b) Add enough water to the flour and mix to make a thick paste.
- c) Boil one litre of water in a separate saucepan.
- d) Pour the thick paste into the boiling water while stirring to prevent formation of lumps.
- e) Leave the porridge to boil for 6-10 minutes. The product will thicken when ready
- f) Remove from fire and serve warm.

3.5.2 Mashes



Sweetpotato-bean-pumpkin mash

Sweetpotato-minced meat mash

1) Recipe for sweetpotato mash

INGREDIENTS

Fresh sweetpotato roots
Water

AMOUNT

300 g (1 medium-size root)
adequate

PROCEDURE

- Peel, wash and cut the sweetpotato into small pieces.
- Place into an aluminum pan and boil until its cooked soft.
- Mash the cooked sweetpotato into smooth, soft paste when still warm.

2) Recipes for sweetpotato mixed mashes

Recipe 1: Sweetpotato-fish mash

INGREDIENTS

Sweetpotato
Fish powder
Groundnut flour
Salt
Water

AMOUNT

300 g (1 medium-size root)
15 g (1 heaped tablespoon)
20 g (1 heaped tablespoon)
2 g ($\frac{1}{2}$ teaspoon)
adequate

PROCEDURE

- Pound sun-dried small fish to make fish powder.
- Peel, wash and cut the sweetpotato into pieces. Place into a steaming aluminum pan with lid.
- Mix fish powder and groundnut flour, add water and mix to make a paste.
- Add salt to taste.
- Pour the ground nut and fish paste on the pan containing cut pieces of sweetpotato and cover.
- Boil the mixture of sweetpotato and groundnut-fish paste until well cooked.

f) Mash and serve warm.

Recipe 2: Sweetpotato-bean-pumpkin mash

INGREDIENTS

Sweetpotato

Pumpkin

Groundnut flour

Dry beans

Salt

Water

AMOUNT

150 g ($\frac{1}{2}$ medium-size)

100 g (1 slice)

20 g (1 heaped tablespoon)

100 g (1 palm full)

2 g (0.5 teaspoon)

adequate

PROCEDURE

- a) Wash and soak the beans overnight.
- b) Remove skin from beans and place in an aluminum box.
- c) Add groundnut flour and salt to taste.
- d) Add water and mix to make a thick mixture.
- e) Cover the aluminum box with lid and steam mixture until well cooked.
- f) Peel, wash and cut the sweetpotato and pumpkin into small pieces.
- f) Add the cut pieces of sweetpotato and pumpkin to the cooked beans and cook.
- f) Mash the cooked mixture and serve

Recipe 3: Sweetpotato-minced meat mash

INGREDIENTS

Sweetpotato

Minced meat

Roasted groundnut paste

Salt

Water

AMOUNT

300 g (1 medium-size)

20 g (1 heaped tablespoon)

20 g (1 heaped tablespoon)

2 g (0.5 tea spoon)

adequate

PROCEDURE

- a) Scrape a piece of meat to make minced meat and place in aluminum pan.
- b) Add groundnut paste, salt and water, and mix.
- c) Cover with lid and steam until well cooked.
- d) Peel, wash and cut sweetpotato into small pieces
- e) Add the cut pieces of sweetpotato to the steamed meat and cook
- d) Mash the cooked mixture and serve warm.

CHAPTER 4

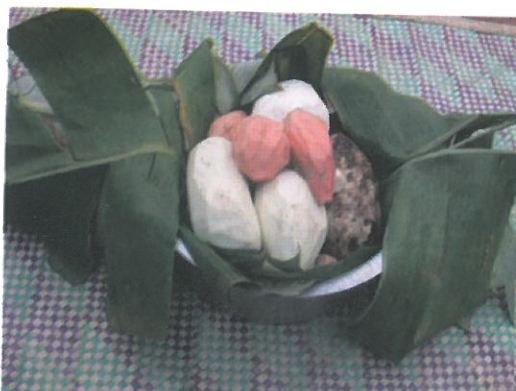
SWEETPOTATO SECONDARY PROCESSED PRODUCTS FROM TRADITIONAL RECIPES

C. Otori, A. Kapande, R. Nungo and J. M. Randrianaivoarivony

4.1 Sweetpotato steamed food products

This sub-section presents in detail steamed sweetpotato food products and their recipes. The preparation of steamed sweetpotato dishes is practiced mainly in Uganda. The food is traditionally wrapped and steamed in banana leaves. Recipes for the steamed food products were standardized and are adequate to serve 3-4 people.

4.1.1 Sweetpotato roots



Peeled sweetpotato roots in a saucepan lined with banana leaves



Wrapping sweetpotato in banana leaves



Wrapped sweetpotato ready for steaming



Ready-to-eat steamed sweetpotato served on steamed banana leaves

INGREDIENTS

Sweetpotato
Water

AMOUNT

4 kg (8 medium-size roots)
1 liter (2 plastic mugs)

PROCEDURE

- a) Peel and wash sweetpotato.
- b) Twist and place the removed middle portion of banana leaves at the bottom of the saucepan.
- c) Place a banana leaf in a saucepan and put in the peeled sweetpotato roots.
- d) Wrap the sweetpotato in banana leaves.
- e) Add water in the saucepan for steaming sweetpotato.
- f) Steam until the sweetpotato is cooked.
- g) Serve warm as main meal with any accompanying sauce or serve cool as a snack.

4.1.2 Sweetpotato roots- fish- groundnuts

INGREDIENTS

Sweetpotato roots
Curry powder
Smoked tilapia (fish)
Roasted groundnuts
Salt
Water

AMOUNT

3 kg (6 medium-size roots)
8 g (2 level teaspoons)
1 medium-size
125 g ($\frac{1}{2}$ standard cup)
4 g (1 level teaspoon)
adequate ($\frac{1}{2}$ liter)

PROCEDURE

- a) Peel and wash sweetpotato roots then slice and chop into small cubes.
- b) Remove flesh from the fish, pound and sieve roasted groundnuts to make a paste.
- c) Mix ground paste with water. Add curry powder, fish and chopped sweetpotato roots to the ground nut paste.
- d) Carefully wrap the mixture of ingredients tightly in banana leaves.
- e) Steam until ready.
- f) Serve as a complete meal.

4.2 Sweetpotato boiled food products

This sub-section presents in detail sweetpotato boiled food products and their recipes. The products include boiled fresh sweetpotato roots and sweetpotato dried chips. Recipes for the boiled food products were standardized and are adequate to serve 3-4 people

4.2.1 Peeled roots



Ready-to-eat boiled roots, white fleshed variety



Ready-to-eat boiled roots, orange fleshed variety

Recipes for peeled, boiled sweetpotato roots

Recipe 1: Whole sweetpotato roots

INGREDIENTS

Sweetpotato roots
Water

AMOUNT

4 kg (8 medium-size roots)
1 liter (4 standard cups)

PROCEDURE

- Peel and wash the sweetpotato roots.
- Place washed roots in saucepan, add water and cover sauce pan.
- Boil the roots until they are cooked soft.
- Serve as a snack when cool with tea, juice or as a meal when hot with sauce.

Recipe 2: Chopped sweetpotato roots

INGREDIENTS

Medium sweetpotato roots
Salt
Water

AMOUNT

4 kg (8 medium-size roots)
4 g (1 level teaspoon)
1 liter (4 standard cups)

PROCEDURE

- Peel and wash the sweetpotato roots
- Chop the roots into small pieces of 2 cm thickness
- Place the chopped pieces in a cooking pot, add water and salt.
- Boil the sweetpotato mixture until cooked soft
- Serve hot

Variation:

100 g (10 level teaspoons) of sugar can be added instead of salt.

4.2.2 Jacketed roots



Boiled jacketed roots



*Use a knife to remove skin/ peel
boiled jacketed roots*



Boiled jacketed roots on the left, peeled and ready-to-eat root on the right

INGREDIENTS

Jacketed sweetpotato roots
Water

AMOUNT

4 kg (8 medium-size roots)
1 liter (4 standard cups)

PROCEDURE

- a) Wash the unpeeled sweetpotato roots.
- b) Place the roots in a cooking pot, add water and boil until well done and firm.
- c) Use a knife to remove skin when ready.
- d) Serve hot as a meal with accompanying sauce.

4.2.3 Peeled roots boiled in pulses

Recipe 1

INGREDIENTS

Sweetpotato roots
Beans
Salt
Water

AMOUNT

1½ kg (3 medium-size tubers)
½ kg (1 plastic mug)
8 g (2 level teaspoons)
1 liter (2 plastic mugs)

Recipe 2

INGREDIENTS

Sweetpotato roots
Pigeon peas /cowpeas
Salt
Water

AMOUNT

1½ kg (3 medium-size tubers)
½ kg (1 plastic mug)
8 g (2 level teaspoons)
1 liter (2 plastic mugs)

PROCEDURE

- Boil the pulses (beans or cowpeas or pigeon peas) until three quarters ready.
- Peel, wash and chop sweetpotato roots into small pieces.
- Add the chopped sweetpotato into the cooking pulse and mix.
- Add salt and boil until the pulse and sweetpotato mixture is well cooked.
- Serve hot as a complete meal when ready.

4.2.4 Dried chips



Dried sweetpotato chips before boiling



*Ready- to- eat boiled
sweetpotato dried chips*

INGREDIENTS

Dried sweetpotato chips
Salt
Water

AMOUNT

800 g (4 plastic mugs)
8 g (2 level teaspoons)
2 liters (4 plastic mugs)

PROCEDURE

- Boil water in a saucepan.
- Wash the dried sweetpotato chips and add to the boiling water.
- Keep turning the boiling dried chips.
- Add salt and leave the chips to boil until they are ready.
- Serve as main meal when warm with sauce or leave to cool and serve as a snack with tea

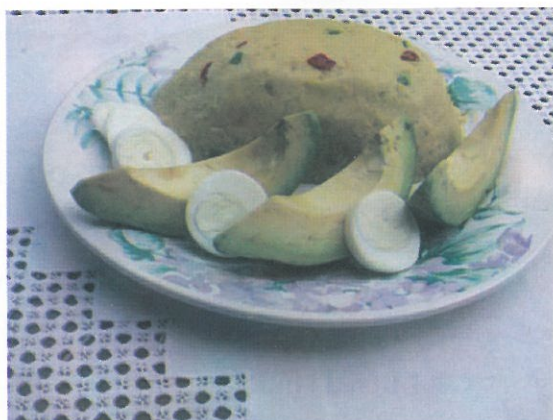
4.3 Sweetpotato mashed food products

This sub-section presents in detail sweetpotato mashed food products and their recipes. The products include pure and mixed mashes of fresh boiled sweetpotato roots and dried chips. These products can be served as a snack food or main meal dish.

4.3.1 Sweetpotato root mashes



Ready- to- eat fresh sweetpotato mash



Ready-to-eat mashed fresh sweetpotato mixed with palm oil, pepper and decorated with avocado and eggs

Recipes for pure sweetpotato root mashes

Recipe 1: Pure sweetpotato mash

INGREDIENTS

Fresh sweetpotato roots
Salt (Optional)
Water

AMOUNT

2 kg (4 medium-size roots)
8 g (2 level teaspoons)
600 ml (¼ plastic mugs)

PROCEDURE

- Peel and wash the sweetpotato roots.
- Chop the sweetpotato roots into small pieces.
- Place the chopped sweetpotato in a saucepan, add water and boil.
- Add salt and cook until sweetpotato is soft.

- e) Drain off excess water if there is any.
- f) Use a wooden spoon to mash the sweetpotato into a smooth mash.
- g) Serve with or without sauce.

Variation: 8 g (2 level teaspoons) of chopped pepper and 20 ml (2 tablespoons) of palm oil can be added to the cooked roots before mashing. The sweetpotato mash can then be decorated with avocado and egg slices.

Recipes for mixed sweetpotato root mashes



Fresh sweetpotato-cassava mash

Recipe 1: Fresh sweetpotato-cassava mash

INGREDIENTS

Sweetpotato
Cassava
Salt (Optional)
Water

AMOUNT

1¼ kg (2 medium-size roots)
2 kg (4 medium-size roots)
4 g (1 level teaspoon)
1 liter (2 plastic mugs)

PROCEDURE

- a) Peel sweetpotato, wash and chop into small pieces.
- b) Peel cassava, wash and cut into small pieces.
- c) Mix the chopped pieces of cassava and sweetpotato
- d) Place the mixed pieces in a cooking pot, add water and add salt (if necessary).
- e) Boil until the mixture of sweetpotato and cassava is cooked soft.
- f) Drain off excess water if there is any left in the saucepan.
- g) Mash the mixed cooked roots into soft dough.
- h) Serve as main dish with sauce or as a snack without sauce.

Recipe 2: Fresh sweetpotato-banana mash

INGREDIENTS

Sweetpotato roots
Plantain (banana) fingers
Water

AMOUNT

2.5 kg (5 medium-size roots)
300 g (2 large fingers)
adequate

PROCEDURE

- Wash and peel the sweetpotato roots
- Peel the banana fingers.
- Cut the peeled sweetpotato and banana into small pieces and wash again.
- Place the mixed chopped pieces in a cooking pot, add water and boil until well cooked
- Mash into stiff paste, while still warm
- Serve as main meal with any sauce.

Recipe 3: Sweetpotato-maize-bean mash



Fresh sweetpotato-maize-beans mash

INGREDIENTS

Sweetpotato roots
Maize
Beans
Salt
Water

AMOUNT

5 kg (10 medium-size roots)
500 g (2 standard cups)
1 kg (4 standard cups)
2 g ($\frac{1}{2}$ teaspoon)
Adequate

PROCEDURE

- Sort maize and beans and pre-soak for 6-8 hours.
- Boil the maize and beans till almost cooked.
- Remove soil from sweetpotato roots and peel.
- Wash and slice into desired shapes.
- Add the sliced sweetpotato roots and salt to the maize beans mixture and cook.
- When sweetpotato roots are soft and maize, beans are well cooked, mash.
- Make into balls and serve.

Variation: Before mashing (step f), you can fry product in e with three tomatoes, two bunch coriander, one small onion and 4 tablespoons of cooking oil.

Recipe 4: Sweetpotato - bean mash

INGREDIENTS

Sweetpotato roots
Beans
Salt
Water

AMOUNT

2 kg (4 medium-size roots)
1¼ kg (1½ plastic mugs)
8 g (2 level teaspoons)
¾ liter (1.5 plastic mugs)

PROCEDURE

- a) Boil the beans until half cooked.
- b) Peel, wash and chop sweetpotato into small pieces.
- c) Add the sweetpotato pieces to the half cooked, beans mix and add salt.
- d) Boil the mixture until the beans are well cooked and the sweetpotato is soft.
- e) Drain off excess liquid water and mash the mixture into smooth dough.
- f) Serve as main meal with sauce or as a snack without sauce.

Recipe 5: Sweetpotato – cowpea mash

INGREDIENTS

Fresh sweetpotato roots
Boiled cowpea grains
Skinned tomatoes
Onion
Coriander
Coconut milk
Salt

AMOUNT

6 kg (3 medium-size roots)
250 g (1 standard cup)
3 large tomatoes
1 medium-size
2 small bunches
250 ml (1 standard cup)
4 g (1 level teaspoon)

PROCEDURE

- a) Peel, wash and cut the sweetpotato into small pieces.
- b) Wash the tomatoes, onion, coriander and cut.
- c) Fry the onion, add tomatoes and chopped coriander.
- d) Add small pieces of sweetpotato and simmer till tender.
- e) Add boiled cowpeas and coconut milk.
- f) Cook under low heat till done and mash.
- g) Serve hot with a stew, sauce or salad.

Recipe 6: Sweetpotato-pigeon pea mash

Recip

INGE

Sweet

Plant

Water

PRO

a) W

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f) Se

Rec

INGREDIENTS

Sweetpotato roots

Pigeon peas

Ghee

Salt

AMOUNT

2.5 kg (5 medium-size roots)

250 g (1 standard cup)

10 g (1 level tablespoon)

4 g (1 level teaspoon)

PROCEDURE

a) Clean the pigeon peas thoroughly, wash and boil until tender.

b) Peel sweetpotato, slice and wash.

c) Cut the slices into small cubes and add to the cooked peas.

d) Add ghee, salt and cook until tender.

e) Mash and mingle to form homogeneous mixture.

f) Serve hot or cold.

4.3.2 Dried sweetpotato chips mashes



Dried sweetpotato chips mash

Recipes for dried sweetpotato chips mashes

Recipe 1: Dried sweetpotato chips mash

INGREDIENTS

Dried sweetpotato chips

Salt

Water

AMOUNT

800 g (4 plastic mugs)

8 g (2 level teaspoons)

0.6 liters (1.2 plastic mugs)

PROCEDURE

- a) Boil water.
- b) Wash the dried chips and add to the boiling water.
- c) Add salt and turn the chips.
- d) Keep turning the boiling chips.
- e) Cook the dried chips until soft.
- f) Drain off the excess water and mash the dried chips into a smooth mash.
- g) Serve as main meal with sauce or as a snack without sauce

Recipe 2: Dried sweetpotato chips and fresh sweetpotato mash

INGREDIENTS

Fresh sweetpotato roots
Dried sweetpotato chips
Salt (Optional)
Water

AMOUNT

1.2 kg (4 small-size roots)
400 g (2 plastic mugs)
8 g (2 level teaspoons)
1 liter (plastic mugs)

PROCEDURE

- a) Boil water.
- b) Wash dried chips and add to boiling water.
- c) Keep turning the chips, while cooking.
- d) Peel, wash and chop fresh sweetpotato roots into small pieces.
- e) When boiling chips are half cooked, add the chopped sweetpotato roots and mix.
- f) Keep turning the mixture of dried chips and fresh roots, while it is cooking.
- g) Add salt if necessary.
- h) Cook until the dried chips and sweetpotato are soft.
- i) Drain off excess water and mash the mixture of dried sweetpotato chips and fresh sweetpotato into smooth dough.
- j) Serve as main meal with sauce or as a snack without sauce.

Recipe 3: Dried sweetpotato chips-simsim mash

INGREDIENTS

Dried sweetpotato chips
Simsim paste
Water
Salt (optional)

AMOUNT

800 g (4 plastic mugs)
120 g (6 level tablespoons)
1 liter (2 plastic mugs)
8 g (2 level teaspoons)

PROCEDURE

- a) Boil water in a saucepan.
- b) Wash dried chips and add to boiling water.
- c) Keep turning the boiling chips.
- d) Add salt (if necessary).

- e) Cook until soft.
- f) Drain off excess water and add simsim paste.
- g) Mash into smooth dough.
- h) Serve with or without sauce.

Variations:

Add 0.5 liter (1 plastic mug) of sour milk instead of simsim paste before mashing the cooked dried chips

4.4 Sweetpotato roasted products

This sub-section presents roasted sweetpotato products that can be prepared from jacketed and peeled roots.

4.4.1 Jacketed and peeled sweetpotato roots



Roasted jacketed sweetpotato



Roasted peeled roots

INGREDIENTS

Sweetpotato roots

AMOUNT

4 kg (8 medium-size roots)

PROCEDURE

- a) For the roasted jacketed sweetpotato, wash unpeeled sweetpotato roots. Peel and wash peeled roots in case of roasted peeled roots.
- b) Drain off excess water from the roots and put on a wire mesh
- c) Place the wire mesh over open fire to roast the sweetpotato roots.
- d) Keep turning the roots till well roasted.
- e) For roasted jacketed sweetpotato roots, peel off the skin when ready.
- f) Serve hot as a meal with sauce or as a snack with tea, juice or water.

4.5 Sweetpotato curried and stewed food product

4.5.1 Sweetpotato roots curry



Sweetpotato roots fried with onions, tomatoes and curried with a mixture of spices

Recipe 1

INGREDIENTS

Sweetpotato
Cooking oil
Onions
Tomatoes
Curry powder
Water

AMOUNT

2 kg (4 medium-size tubers)
20 ml (2 tablespoons)
100 g (4 onions)
300 g (2 medium-size tomatoes)
12 g (3 level teaspoons)
2 liters (4 plastic mugs)

PROCEDURE

- Peel, wash and chop sweetpotato into small pieces.
- Heat the oil.
- Add onions and turn until they are golden brown in color.
- Add tomatoes and salt, keep turning.
- Add curry powder and after a few minutes add water for boiling the sweetpotato.
- Add the chopped sweetpotato.
- Boil until sweetpotato is cooked.
- Serve the sweetpotato curry with an accompanying sauce if necessary.

Recipe 2

INGREDIENTS

Sweetpotato
Blanched and chopped tomato
Sultanas/currants

AMOUNT

2 kg (4 medium-size roots)
200 g (2 medium-size)
20 g (2 level tablespoons)

Cooking apples or other fruits (chopped)	200 g (2 medium-size)
Mixed spices	4 g (1 level teaspoon)
Curry powder	4 g (1 level teaspoon)
Turmeric	2 g (½ teaspoon)
Shredded sweet pepper	50 g (1 medium-size)
Wine (optional)	125 ml (½ standard cup)
Soy sauce (optional)	20 ml (2 tablespoons)
Green chili	10 g (1 small-size)
Onions (chopped)	300 g (3 small-size)
Leek (chopped)	100 g (1 small-size)
Garlic powder	4 g (1 level teaspoon)
Ground black pepper	2 g (½ teaspoon)
Lemon juice	5 ml (1 teaspoon)
Fat	40 g (1 heaped tablespoon)
Coconut milk	250 ml (1 standard cup)
Salt	4 g (1 level teaspoon)
Pepper	4 g (1 level teaspoon)
Water	250 ml (1 standard cup)

PROCEDURE

- Peel, wash and chop sweetpotato into small pieces.
- Heat the fat and fry the onions and all other ingredients except the coconut milk.
- Add the chopped sweetpotato to the onion mixture.
- Add enough water to cook the sweetpotato pieces.
- Cook until most of the water has drained off.
- Add the coconut milk and simmer until most of the water has drained off.
- Serve hot with suitable accompaniment.

4.5.2 Dried chips curry



Dried sweetpotato chips mixed with onions, tomatoes, curry powder and boiled in roasted groundnut paste

INGREDIENTS

Dried sweetpotato chips
Roasted groundnut paste
Salt
Onions
Tomatoes
Curry powder
Water

AMOUNT

800g (4 plastic mugs)
240 g (8 tablespoons)
8 g (2 level teaspoons)
100 g (4 onions)
350 g (3 medium-size)
25 g (1 sachet)
2 liters (4 plastic mugs)

PROCEDURE

- a) Boil water.
- b) Wash dried chips and add to boiling water.
- c) Keep turning the boiling chips until they are nearly cooked.
- d) Add sliced onions, tomatoes and curry powder.
- e) Boil until the tomatoes and dried chips are ready.
- f) Add the roasted groundnut paste to the chips.
- g) Simmer for about 5 minutes.

4.5.3 Fresh root stews



A mixture of orange and yellow fleshed sweetpotato-meat stew enriched with coconut milk

Recipe 1: Sweetpotato roots-meat stew

INGREDIENTS

Sweetpotato roots
Meat
Tomatoes
Onions
Curry powder
Coconut milk/milk/groundnut milk

AMOUNT

2 kg (4 medium-size roots)
 $\frac{1}{2}$ kg
2
2
4 g (1 level teaspoon)
250 ml (1 standard cup)

INGREDIENTS

Dried sweetpotato chips
Roasted groundnut paste
Salt
Onions
Tomatoes
Curry powder
Water

AMOUNT

800g (4 plastic mugs)
240 g (8 tablespoons)
8 g (2 level teaspoons)
100 g (4 onions)
350 g (3 medium-size)
25 g (1 sachet)
2 liters (4 plastic mugs)

PROCEDURE

- a) Boil water.
- b) Wash dried chips and add to boiling water.
- c) Keep turning the boiling chips until they are nearly cooked.
- d) Add sliced onions, tomatoes and curry powder.
- e) Boil until the tomatoes and dried chips are ready.
- f) Add the roasted groundnut paste to the chips.
- g) Simmer for about 5 minutes.

4.5.3 Fresh root stews



A mixture of orange and yellow fleshed sweetpotato-meat stew enriched with coconut milk

Recipe 1: Sweetpotato roots-meat stew

INGREDIENTS

Sweetpotato roots
Meat
Tomatoes
Onions
Curry powder
Coconut milk/milk/groundnut milk

AMOUNT

2 kg (4 medium-size roots)
 $\frac{1}{2}$ kg
2
2
4 g (1 level teaspoon)
250 ml (1 standard cup)

Fat
Sweet pepper
Salt
Water

80 g (2 heaped tablespoons)
1 fruit
4 g (1 level teaspoon)
adequate

PROCEDURE

- a) Peel and cut the sweetpotatoes into pieces of a desirable size.
- b) Cut meat into pieces, tenderize with a meat hammer and leave aside.
- c) Heat the oil; fry the chopped onion, curry powder, and sweet pepper.
- d) When ready, add the meat and fry until it seals all the meat juices.
- e) Boil meat for 10 minutes in water then lower the heat and simmer until meat is cooked.
- f) Add more water to the meat-stew, add the sweetpotato pieces and the blanched cut tomatoes, salt and pepper.
- g) Cook at high temperature for 10 minutes.
- h) Then reduce heat and simmer until most of water has drained off.
- i) Add the coconut milk/milk or groundnut milk and simmer until the desired stew is reached.
- j) Serve hot with vegetables to make a meal.

Recipe 2: Sweetpotato roots-beef stew

INGREDIENTS

Sweetpotato roots
Beef
Carrots
Tomatoes
Onion
Coriander
Mixed spices (optional)
Royco (salted curry powder)
Salt
Sweet pepper
Cooking oil
Water

AMOUNT

2 kg (4 medium-size roots)
250 g
3 (3 small-size)
3 (3 medium-size)
1 (1 large-size)
2 (2 bunches)
4 g (1 level teaspoon)
8 g (2teaspoons)
4 g (1 level teaspoon)
1 fruit
30 ml (3 tablespoons)
adequate

PROCEDURE

- a) Cut clean meat into small cubes, boil and simmer for 20 minutes.
- b) Peel, wash and slice sweetpotato roots into pieces.
- c) Wash and cut onion, tomato, sweet pepper, carrots and coriander.
- d) Fry onions in oil till browning and add sliced sweet pepper, carrots, tomatoes and coriander, while stirring.
- e) Leave to cook for 10 minutes.
- f) Add sweetpotato and mix well.
- g) Simmer for 15 more minutes then remove from fire and serve.

Recipe 3: Sweetpotato roots-offal stew

INGREDIENTS

Sweetpotato	2 kg (4 medium-size)
Offal/tripe	½ kg
Onion	2 medium-size
Tomatoes	2 medium-size
Sweet pepper	1 fruit
Crushed garlic	2.5 g (½ teaspoon)
Ginger	2 g (½ teaspoon)
Lemon juice	5 ml (1 teaspoon)
Coconut milk	250 ml (2 standard cups)
Salt	4 g (1 level teaspoon)
Pepper	4 g (1 level teaspoon)
Water	adequate

AMOUNT

PROCEDURE

- Wash and cut the offal into pieces. Put in a saucepan.
- Add lemon, garlic, ginger, salt and pepper, as shown in the recipe.
- Cover the offal with water and bring to boil.
- Cook for 10 minutes and simmer until the offal is tender.
- Add onions, tomatoes and sweet pepper and continue to simmer.
- Peel, cut and wash the sweetpotato into pieces.
- Add the sweetpotato pieces to the cooked offal.
- Add more water if necessary and cook until tender, but firm.
- When the water in the stew has drained off, add the coconut milk and simmer for 5 minutes.
- Serve hot with suitable accompaniment.

Recipe 4: Sweetpotato roots-fish stew



Orange fleshed sweetpotato-fish stew enriched with coconut milk

Recipe 1

INGREDIENTS

Sweetpotato
Sun-dried or smoked fish
Tomatoes
Crushed garlic
Half-ripe tomatoes (optional)
Onions
Lemon juice (optional)
Fat
Curry powder
Sweet pepper
Coconut milk/milk/groundnut paste
Salt
Pepper
Water

AMOUNT

2 kg (4 medium-size roots)
1
2
5 g (1 level teaspoon)
6
2
10 ml (1 tablespoon)
120 g (3 heaped tablespoons)
4 g (1 teaspoon)
1 fruit
250 ml (1 standard cup)
4 g (1 level teaspoon)
4 g (1 level teaspoon)
¼ liter (1 standard cup)

PROCEDURE

- Wash and soak the fish in lemon juice water for 15–20 minutes. Thereafter remove fish from water.
- Peel and cut the sweetpotato into reasonable sizes.
- Prepare onion, tomatoes, sweet pepper and the half ripe tomatoes.
- Fry the onions, curry powder, sweet pepper, garlic and tomatoes.
- Place the fish in 1 cup of water and bring to boil, add the onion mixture and cook until tender.
- Add the sweetpotato pieces, cover the pan and simmer until most of the liquid has drained off, add the sour tomatoes and milk. Continue to simmer until the desired stew is obtained.
- Serve hot with vegetables.

Recipe 5: Sweetpotato roots- silver fish stew

INGREDIENTS:

Sweetpotato
Sorted small-sized fish species
Cooked pulse
Mixed spices
Turmeric powder
Green Chili
Ground black pepper
Onions
Sweet pepper
Coconut milk
Oil
Sultanas and/or other cooking fruit
Salt
Pepper

AMOUNT

2 kg (4 medium-size roots)
500 g (2 standard cups)
125 g (½ standard cup)
4 g (1 level teaspoon)
4 g (1 level teaspoon)
1
2 g (½ teaspoon)
2
1
500 ml (2 standard cups)
20 ml (2 tablespoons)
20 g (2 tablespoons)
4 g (1 level teaspoon)
4 g (1 level teaspoon)

PROCEDURE

- a) Wash, peel and cut sweetpotato to desired shape.
- b) Roast small fish in a heated pan.
- c) Soak the fish in water and wash to remove sand.
- d) Heat the oil, fry the onions and sweet pepper, and add the green chili, turmeric, ground pepper mixed spices and mix well.
- e) Add the sweetpotato, sultanas, pulse and dagaa in the onion mixture and mix well.
- f) Add enough water to the mixture and bring to boil. After 5 minutes lower the heat and simmer until most of the water has been drained off.
- g) Add the coconut milk and simmer for 5 minutes more leaving enough liquid.
- h) Serve hot.

4.6 Sweetpotato thick porridge (ugali) products

This sub-section presents in details different types of thick porridges products prepared from processed sweetpotato including pure sweetpotato flour and sweetpotato composite flour.

4.6.1 Sweetpotato flour-based thick porridge

INGREDIENTS

Sweetpotato flour
Tamarind fruit
Water

AMOUNT

600 g (2 plastic mugs)
64 g (4 pods)
2 liters (4 plastic mugs)

PROCEDURE

- a) Soak tamarind fruit in water.
- b) Remove the seeds and fiber from the solution.
- c) Boil the tamarind solution.
- d) Add sweetpotato flour to the boiling solution, a little at a time while mingling until a thick paste without lumps is formed.
- e) Simmer the thick paste for a few minutes.
- f) Serve as main meal with an accompanying sauce.

4.6.2 Sweetpotato composite flour-based thick porridges



Sweetpotato-cassava flour thick porridge



Sweetpotato-sorghum flour thick porridge



sweetpotato-millet-cassava flour thick porridge

Recipes for thick porridges

Recipe 1: Sweetpotato-cassava flour thick porridge

INGREDIENT	AMOUNT
Sweetpotato flour	300 g (1 plastic mug)
Cassava flour	250 g (1 plastic mug)
Tamarind fruit	54 g (4 pods)
Water	2 liters (4 plastic mugs)

Recipe 2: Sweetpotato-sorghum flour thick porridge

INGREDIENTS	AMOUNT
Sweetpotato flour	300 g (1 plastic mug)
Sorghum flour	150 g (½ plastic mug)
Tamarind fruit	54 g (4 pods)
Water	2 liters (4 plastic mugs)

Recipe 3: Sweetpotato-cassava-millet flour thick porridge

INGREDIENTS	AMOUNT
Sweetpotato flour	150 g (½ plastic mug)
Cassava flour	250 g (1 plastic mug)
Millet flour	300 g (1 plastic mug)
Tamarind fruit	54 g (4 pods)
Water	2 liters (4 plastic mugs)

PROCEDURE

- Mix the flours i.e., sweetpotato flour with cassava, millet and sorghum flours depending on the recipe.
- Soak tamarind fruit in water.
- Remove the seeds and fiber from the solution.
- Boil the tamarind solution.
- Add sweetpotato flour to the boiling solution; a little at a time while mingling until a thick paste without lumps is formed.
- Simmer the thick paste for a few minutes.
- Serve as main meal with an accompanying sauce.

CHAPTER 5

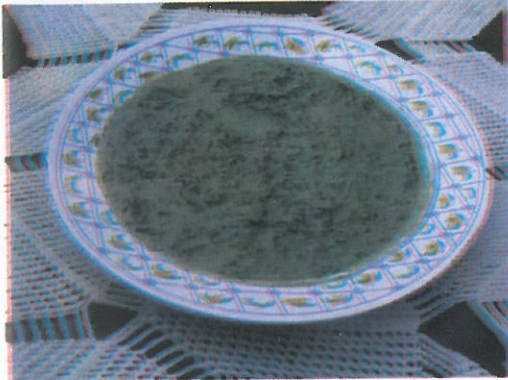
SWEETPOTATO LEAF - BASED DISHES

A. Kapande, C. Owori and R. Nungo

In this section, recipes for new and traditional sweetpotato leaf- based dishes are presented. The products include sweetpotato leaf sauces and relish.

5.1 Sweetpotato leaves sauces

5.1.1 Fresh sweetpotato leaves



Sweetpotato-cocoyam leaves sauce

Recipes for fresh sweetpotato leaves sauces

Recipe 1: Fresh sweetpotato-cowpea leaves sauce

INGREDIENTS

Sweetpotato leaves
Cowpea leaves
Okra leaves
Magadi salt
Salt
Roasted simsim paste
Roasted groundnut paste
Water

AMOUNT

15g (2 handfuls)
15 g (2 handfuls)
20 g (1 handful)
4g (1 teaspoonful)
4g (1 level teaspoon)
20 g (2 tablespoons)
30 g (2 tablespoons)
0.5 liter (1 plastic mug)

PROCEDURE

- Mix the sweetpotato, cowpea and okra leaves and place in the sun to wilt a little.
- Wash the wilted vegetables and cut into smaller pieces.
- Boil water and add magadi salt.
- Put the cut pieces of vegetable into the boiling water.
- Add salt when vegetable is about to get ready.

- f) Mix the groundnut and simsim paste with a little cold water until a-smooth flowing paste is formed.
- g) When the vegetable is ready, add the paste mixture.
- h) Simmer for about 5 minutes.

Recipe 2: Assorted sweetpotato leaves-based sauce

INGREDIENTS	AMOUNT
Sweetpotato leaves	50 g (1 handful)
Pumpkin leaves	30 g (1 handful)
Tomato leaves	20 g (1 handful)
Okra leaves	20 g (1 handful)
Magadi salt	4 g (1 level teaspoon)
Salt	8 g (2 level teaspoons)
Roasted groundnut paste	30 g (2 tablespoons)
Roasted simsim paste	20 g (2 tablespoons)
Water	½ liter (1 plastic mug)

PROCEDURE

- a) Remove threads from the pumpkin leaves.
- b) Mix all the vegetable leaves and put in the sun to wilt a little.
- c) Wash the wilted vegetables and cut into smaller pieces.
- d) Boil water and add magadi salt.
- e) Put the cut pieces of vegetables into boiling water.
- f) Add salt when vegetable is about to get ready.
- g) Mix the groundnut and simsim paste with a little cold water until a smooth flowing paste is formed.
- h) When the vegetable is ready, add the paste mixture to the vegetable.
- i) Simmer for about 5 minutes.

Recipe 3: Fresh Sweetpotato-cocoyam leaves

INGREDIENTS	AMOUNT
Sweetpotato leaves	200g (4 handfuls)
Cocoyam leaves	200 g (10 small leaves)
Roasted groundnut paste	60 g (4 level tablespoons)
Salt	8 g (2 level teaspoons)
Water	½ liter (1 plastic mug)

PROCEDURE

- a) Break the middle portion of cocoyam leaves to separate from the middle veins of the leaves.
- b) Mix the tender cocoyam leaves with sweetpotato leaves and put in the sun to wilt.
- c) Wash the wilted vegetables and cut into smaller pieces.

- 1g
- d) Boil water and place the cut pieces of vegetables into boiling water to cook.
 - e) Add salt when vegetable is about to get ready.
 - f) Mix the groundnut paste with a little cold water until a smooth flowing paste is formed.
 - g) When the vegetable is ready, add the paste mixture to the vegetable and simmer for about 5 minutes.

5.1.2 Dried sweetpotato leaves

INGREDIENTS

Sweetpotato leaves
Cowpea leaves
Magadi salt
Salt
Roasted simsim paste
Roasted groundnut paste
Water

AMOUNT

15g (2 handfuls)
15 g (2 handfuls)
4 g (1 teaspoonful)
4 g (1 level teaspoon)
20 g (2 level tablespoons)
30 g (2 tablespoons)
0.5 liter (1 plastic mug)

PROCEDURE

- a) Mix sweetpotato and cowpea.
- b) Put the mixture in boiling water for about 3 minutes (blanching).
- c) Remove and drain excess water.
- d) Dry the blanched vegetables in the open sun.
- e) After the vegetables are properly dried, crush into a powder.
- f) Boil water and add magadi salt.
- g) Put the crushed vegetables into the boiling water.
- h) Add salt when vegetable is about to get ready.
- i) Mix the groundnut and simsim paste with a little cold water until a smooth flowing paste is formed.
- j) When the vegetable is ready, add the paste mixture.
- k) Simmer for about 5 minutes.

5.2 Sweetpotato leaf relish

5.2.1 Boiled sweetpotato–amaranthus leaves



Use tender leaves of sweet potato.



Cut leaves into small pieces



A mixture of boiled sweetpotato and amaranthus leaves

INGREDIENTS

Sweetpotato leaves
Amaranthus leaves
Salt
Water

AMOUNT

200g (2 handfuls)
200 g (2 handfuls)
14 g (3 teaspoons)
125 ml ($\frac{1}{4}$ plastic mug)

PROCEDURE

- Boil water in a saucepan.
- Wash the sweetpotato and amaranthus leaves and cut the mixture of vegetables into small pieces.
- Add the leaves to the boiling water.
- Keep turning the boiling vegetable.
- Add salt and boil until the vegetable is ready.

5.2.2 Fried Sweetpotato leaves



Sweetpotato leaves fried with onions, tomatoes and spices

INGREDIENTS

Sweetpotato leaves
Cooking fat /oil
Onions
Tomatoes
Coriander
Thickening agent
Mixed spices e.g. Royco
Soya flour (optional)
Salt

AMOUNT

400 g (4 handfuls)
80 g (2 heaped tablespoons)
1 medium-size
3 medium-size
1 bunch
8 g (1 tablespoon)
16 g (2 tablespoons)
16 g (2 tablespoons)
4 g (1 level teaspoon)

PROCEDURE

- a) Use any green tender leaves of sweetpotato.
- b) Cut leaves into small pieces.
- c) Wash the leaves in warm water twice to remove anti-nutrients.
- d) Wash and cut onions, coriander and tomatoes.
- e) Fry the onion till brown.
- f) Add the tomatoes, coriander and turn.
- g) Add the leaves and cook for 20 minutes.
- h) Add Royco or soya flour and cook for 10 minutes.
- i) Serve hot with any dish.

Variation: The Royco flavor can be replaced with either milk, coconut *milk*, groundnut, or simsim paste.

CHAPTER 6

SWEETPOTATO-BASED SALADS AND PUDDING

A. Kapande, C. Owori and R. Nungo

6.1 Sweetpotato-fruit Salads



Sweetpotato-fruit salad

INGREDIENTS

Boiled jacketed (cooked with skins) sweetpotato
Ripe sweet bananas
Just ripe pawpaw (papaya)
Boiled sultanas
Apple (optional)
Watermelon
Syrup
Vanilla essence
Lemon juice

AMOUNT

1 kg (2 medium-size roots)
200 g (1 finger)
 $\frac{1}{2}$ kg (1 slice)
20 g (2 level tablespoons)
100 g (1 fruit)
200 g (2 slices)
500 ml (2 standard cups)
10 ml (teaspoons)
20 ml (2 tablespoons)

PROCEDURE

- Peel and dice the boiled sweetpotato into very small pieces and place in the fruit salad bowl.
- Add lemon juice and mix well.
- Dice bananas and cut pawpaw into small pieces then add to the bowl and mix.
- Add to the bowl sultanas, sliced water melon and apple then mix.
- Add the syrup and vanilla essence, mix well.
- Cool the salad in the refrigerator.
- Serve cold as a dessert.

6.2 Sweetpotato-vegetable salad

Recipes for sweetpotato-vegetable salads

Recipe 1: Sweetpotato-cucumber salad



Sweetpotato-Cucumber salad

INGREDIENTS

Sweetpotato root
Cucumber
Spring onion
Sweet pepper
Sugar
Vinegar or lemon juice
Salt
Hot pepper

AMOUNT

0.5 kg (1 medium-size root)
300 g (3 medium-size fruit)
100 (1 medium-size)
100 g (1 big-size)
4 g (1 level teaspoon)
10 ml (1 tablespoon)
4 g (1 level teaspoon)
12 g (4 fruits)

PROCEDURE

- Cut cucumber into thin rings and place them in the vegetable bowl.
- Chop onions, dice the sweet pepper and add them in the cucumber bowl.
- Grate the raw sweetpotato root finely and add in the bowl.
- Mix vinegar, salt, and sugar in a cup and pour in the salad bowl then mix all the ingredients well.

Recipe 2: Plain sweetpotato vegetable salad



Plain sweetpotato-vegetable salad

INGREDIENTS

Boiled jacketed (cooked with skins) sweetpotato
Chopped onions
Chopped sweet pepper
Mayonnaise
Lemon juice
Salt

AMOUNT

1 kg (2 medium-size roots)
200 g (2 onions)
100 g (1 big-size)
20 g (2 tablespoons)
10 ml (1 tablespoon)
4 g (1 level teaspoon)

PROCEDURE

- Peel and cut the boiled sweetpotato into cubes and place in the vegetable salad bowl.
- Add the chopped onions, and sweet pepper.
- Add lemon juice, salt and pepper to taste.
- Add the Mayonnaise and mix well without breaking the sweetpotatoes.
- Serve warm or cool in refrigerator before serving.

Recipe 3: Sweetpotato vegetable salad in vinegar

INGREDIENTS

Sweetpotato roots
Onions
Vinegar
Salad oil
Ground black pepper
Salt
Pepper

AMOUNT

1 kg (2 medium-size roots)
200 g (2 onions)
40 ml (4 tablespoons)
5 ml (1 teaspoon)
2 g ($\frac{1}{2}$ teaspoon)
4 g (1 level teaspoon)
4 g (1 level teaspoon)

PROCEDURE

- a) Grate raw sweetpotato roots into fine pieces and put in a cooking pot.
- b) Add salad oil, vinegar, black pepper, and salt.
- c) Place the sweetpotato mixture on slow heat for a few minutes, but do not over cook.
- d) Remove from the heat and put it in a salad bowl.
- e) Shred the onions finely and mix them in the bowl of sweetpotato salad.
- f) Serve warm.

6.3 Sweetpotato–pineapple pudding

INGREDIENTS

AMOUNT

Sweetpotato flour	150 g (1 standard cup)
Wheat flour	450 g (3 standard cups)
Baking powder	12 g (3 level teaspoons)
Sugar	30 g (3 level tablespoons)
Eggs	4 eggs
Margarine	200 g (5 heaped tablespoons)
Pineapple	300 g (1 small-size)

PROCEDURE

- a) Mix the dry ingredients together in a bowl i.e., wheat flour, sweetpotato flour and baking powder in a mixing bowl.
 - b) Cream the margarine and sugar in a separate bowl.
 - c) Break and beat eggs in a separate container.
 - d) Concurrently pour the flour mixture and egg mixture to the creamy sugar and mix.
 - e) If hard add water or milk little by little while mixing to make mixture runny and smooth.
 - f) Peel the pineapple and cut into slices of 1 inch thickness.
 - g) Grease baking tin and arrange the pineapple slices in the tin.
 - h) Pour cake mix into tin and mix with the pineapples.
 - i) Bake in oven at 175°C or till brown. This will take about 30 minutes.
- Remove and pour contents upside down into a plate or small tray.
Serve as dessert/sweet.

APPENDICES

A. Good manufacturing practices (GMPs)

Sweetpotato value-added products suitable for sale and home use need to conform to appropriate food safety and hygiene legislation. Good manufacturing practices help to produce

- quality products
- safe products
- high yields
- less wastage
- make good business profits.

The following are GMPs that can be established by all types of processors and house wives to ensure the required hygiene, safety and quality standards of sweetpotato products.

Ingredients for making products

- Collect all the ingredients required for making the product a day before and make sure that preparations start the next day.
- Weigh and measure the ingredients as accurately as possible as variations in quantity may result in product quality changes and may also mean adjustment in cooking time and temperature.
- When making products with many ingredients, be sure that all ingredients are added as product quality will be affected if one is missing
- Hard margarine is recommended for baking. In the absence of hard margarine, use soft or table margarine straight from the refrigerator and do not over cream. These type of margarine oil very quickly results in heavy cakes or cause an initial rise then sink in the middle.

Choosing where to put processing business

- Business should be located near water supply and electricity. Avoid flooding and dirty places.
- The processing area must not be located near a stock farm or garbage

Processing utensils and containers

- Utensils and containers, particularly the cutting surface of knives must be properly cleaned before and after use

Processing and packaging

- During preparation/processing and packaging, protect products from sources of contamination such as hair, insects, etc. by wearing hair nets and protective aprons
- Products that do not meet quality standards for sale should be removed for home Consumption.
- Packaging of products should be done following hygienic practices

Labeling

Products packaged in plastic films and bottles should be labeled properly and should have the following

- name of product
- list of ingredients
- net contents
- name and address of producer
- Country of origin
- Expiry date
- Instructions for use

Storage and store management

- Storage areas and rooms must be thoroughly cleaned
- Provide enough storage space to keep products in good quality
- Regular monitoring of stored products should be undertaken to know the quality status of products

Waste management

All waste must be properly and timely disposed of to prevent breeding of insects and micro-organisms. Always “clean as you go.” This means that waste disposal is removed immediately after it is produced.

Workers

Workers must wash their hands thoroughly with clean water and soap before any product processing operation starts.

Business records

Records of operational activities should be kept to monitor progress and profitability of business. The following types of records are necessary to ensure GMPs. Variety and form of sweetpotato used in making products, amount of quality products produced/ sold, customer complaints, cost of ingredients used and prices for processed products, gross margins for products sold.

Training staff

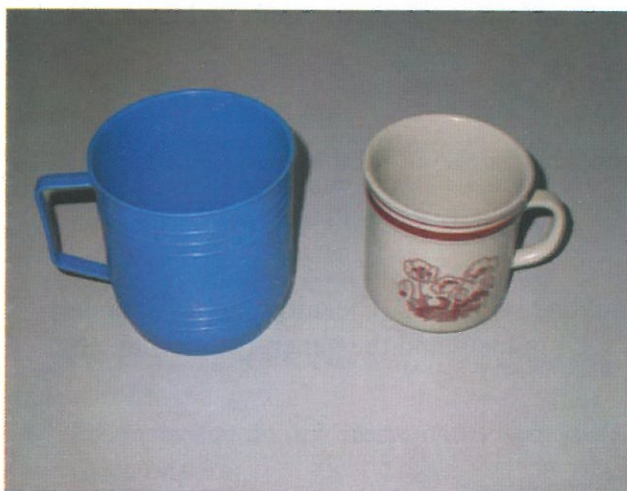
All personnel involved in manufacturing must be trained in food hygiene, product quality and food safety standards.

Cleaning

Cleaning should be done regularly and should be scheduled. Cleaning should include walls, floors and roofs of premises, utensils, equipment and the general environment.

B. Utensils

- Cooking range/ improved charcoal stove
- Cooking pans with lids
- Chapatti pan
- Chapatti rolling board and pin
- Mixing bowls
- Deep frying pan
- Wooden cooking stick
- Wooden cooking spoon
- Table spoons
- Tea spoons
- Kitchen knives
- Pizza cutter
- Doughnut cutters
- Biscuit/cookie cutters
- Bagia machine
- Draining spoon
- Trays
- Cups and mugs
- Plates
- Baking tins
- Kitchen grater
- Sieves
- Basins
- Working surface that is raised
- Chopping board
- Standard cup
- Standard plastic mug



Standard plastic mug on the left and standard cup on the right



Teaspoon on the left and tablespoon on right



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