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Traditional Recipes from Barnyard millet

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**Revalorizing small millets : “Enhancing the food and
nutritional security of women and children in rain fed regions
of South Asia using underutilized species”.**

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PAPAD

INGREDIENTS

Barnyard millet flour	-	500 g
Black gram flour	-	450 g
Cumin seeds	-	50 g
Salt	-	50 g
Sodium bicarbonate	-	50 g



METHOD

- ✿ Mix barnyard millet flour, black gram flour and cumin seeds thoroughly.
- ✿ Add salt and sodium bicarbonate in water and sprinkle on the flour to make stiff dough.
- ✿ Divide the dough into small portions.
- ✿ Roll out into thin circular shapes, shade dry and pack.

Nutrient content (Per 100g)

Carbohydrate	-	67.55 g
Protein	-	15.1 g
Fat	-	1.8 g
Fiber	-	5.35 g
Calcium	-	87 mg
Phosphorous	-	333 mg
Iron	-	4.4 mg
Niacin	-	3.1 mg

VADAGAM

INGREDIENTS

Barnyard millet flour	-	900 g
Chilli powder	-	50 g
Cumin seeds	-	50 g
Salt	-	20 g
Water	-	6000 ml



METHOD

- ✂ Add chilli powder, cumin seeds and salt to the flour.
- ✂ Mix with water to get thick batter.
- ✂ Drop the batter in greased plates using a spoon.
- ✂ Allow it to sun dry.
- ✂ Pack the dried vadagam in air tight bags or container.
- ✂ Deep fry the vadagam in hot oil when required.

Nutrient content (Per 100g)

Carbohydrate	-	62.36 g
Protein	-	7.31 g
Fat	-	3.04 g
Fiber	-	10.9 g
Calcium	-	80.0 mg
Phosphorous	-	296 mg
Iron	-	5.21 mg
Niacin	-	4.39 mg

INTRODUCTION

Barnyard millet (*Echinochloa frumentacea*) is a multi-purpose crop which is cultivated for food and fodder. It is also called by several other names viz., *Japanese barnyard millet*, *ooda*, *oodalu*, *sawan*, *sanwa* and *sanwank*. Nutritionally too, it is a good source of protein, which is highly digestible and is an excellent source of dietary fibre with good amount of soluble and insoluble fractions. The carbohydrate content of barnyard millet is low and slowly digestible, which makes the barnyard millet a nature's gift for the modern mankind who is engaged in sedentary activities.

In barnyard millet the major fatty acid is linoleic acid followed by palmitic and oleic acid. It also shows a high degree of retrogradation of amylose, which facilitates the formation of higher amounts of resistant starches. Hence it can be potentially recommended for the patients with cardiovascular disease and diabetes mellitus. Barnyard millet is most effective in reducing blood glucose and lipid levels.

Nutrient composition of barnyard millet (Per 100g)

S.No	Nutrient	Quantity
1.	Moisture	8.66 g
2.	Protein	10.52 g
3.	Fat	3.56 g
4.	Fiber	10.1 g
5.	Energy	398 kcal
6.	Carbohydrate	65.5 g
7.	Minerals	4.4 mg
8.	Calcium	11 mg
9.	Phosphorous	280 mg
10.	Iron	15.2 mg

BREAKFAST RECIPES

IDLI

INGREDIENTS

- Barnyard millet rice - 730 g
- Black gram dhal - 250 g
- Fenugreek seeds - 20 g
- Salt - as required



METHOD

- 🌿 Soak barnyard millet rice and black gram dhal separately for 4 hours and grind coarsely.
- 🌿 Add salt, mix it evenly and allow it to ferment overnight.
- 🌿 Pour batter into *idli* plates and steam cook for 10-15 minutes.
- 🌿 Serve hot with chutney.

Nutrient content (Per 100g)

Carbohydrate	-	63.1 g
Protein	-	11.1 g
Fat	-	2.08 g
Fiber	-	7.52 g
Calcium	-	56.3 mg
Phosphorous	-	308 mg
Iron	-	4.73 mg
Niacin	-	3.59 mg

THATTU VADAI

INGREDIENTS

- Barnyard millet flour - 800 g
- Roasted bengal gram dhal - 100 g
- Butter - 50 g
- Chilli powder - 30 g
- Curry leaves - 20 g
- Salt - 20 g
- Water - as required
- Oil - for frying



METHOD

- 🌿 Add all the ingredients to the flour and mix thoroughly.
- 🌿 Prepare thick dough by adding required water.
- 🌿 Flatten the dough to thin round shapes on a polythene sheet.
- 🌿 Deep fry it in hot oil till they turn to golden brown.
- 🌿 Allow it to cool and pack in air tight containers.

Nutrient content (Per 100g)

Carbohydrate	-	59.5 g
Protein	-	7.81 g
Fat	-	6.54 g
Fiber	-	8.98 g
Calcium	-	43.2 mg
Phosphorous	-	270 mg
Iron	-	5.04 mg
Niacin	-	3.83 mg

MURUKKU

INGREDIENTS

Barnyard millet flour	-	850 g
Chillie powder	-	30 g
Sesame seeds	-	30 g
Cumin seeds	-	20 g
Asafetida	-	20 g
Butter	-	50 g
Salt	-	20 g
Water	-	as required
Oil	-	for frying



METHOD

- 🍴 Add all the ingredients to the flour and mix uniformly.
- 🍴 Prepare thick dough by adding required water.
- 🍴 Extrude the dough in hot oil using a hand extruder.
- 🍴 Deep fry in hot oil till it turns to golden brown colour.
- 🍴 Allow it to cool and pack in air tight containers.

Nutrient content (Per 100g)

Carbohydrate	-	56.2 g
Protein	-	6.44 g
Fat	-	7.62 g
Fiber	-	9.16 g
Calcium	-	99.7 mg
Phosphorous	-	263 mg
Iron	-	5.37 mg
Niacin	-	3.83 mg

DOSA

INGREDIENTS

Barnyard millet rice	-	730 g
Black gram dhal	-	250 g
Fenugreek seeds	-	20 g
Salt	-	as required



METHOD

- 🍴 Soak barnyard millet rice and black gram dhal separately for 4 hours and grind into fine batter.
- 🍴 Add salt, mix it evenly and allow it to ferment overnight.
- 🍴 Apply oil on the hot plate and pour batter and cook till crisp dosa is obtained.
- 🍴 Serve hot with chutney.

Nutrient content (Per 100g)

Carbohydrate	-	63.1 g
Protein	-	11.1 g
Fat	-	2.08 g
Fiber	-	7.52 g
Calcium	-	56.3 mg
Phosphorous	-	308 mg
Iron	-	4.73 mg
Niacin	-	3.59 mg

PANIYARAM

INGREDIENTS

Barnyard millet rice	- 450 g
Black gram dhal	- 200 g
Fenugreek seeds	- 20 g
Onion (chopped)	- 150 g
Green chillies (chopped)	- 40 g
Cumin seeds	- 20 g
Curry leaves	- 20 g
Oil	- 100 ml
Salt	- as required



METHOD

- 🍴 Soak barnyard millet rice, black gram dhal and fenugreek seed separately for 4 hours and drain the water and grind into the fine batter.
- 🍴 Add salt and allow it to ferment overnight.
- 🍴 Add all the ingredients (chopped onion and chillies) and mix thoroughly.
- 🍴 Apply oil to the paniyaram mould and pour the batter.
- 🍴 Cook both sides and serve hot with chutney.

Nutrient content (Per 100g)

Carbohydrate	-	45.39 g
Protein	-	8.99 g
Fat	-	11.8 g
Fiber	-	5.46 g
Calcium	-	88.4 mg
Phosphorous	-	234 mg
Iron	-	3.75 mg
Niacin	-	2.69 mg

HOT KOLUKATTAI

INGREDIENTS

Barnyard millet flour	- 600 g
Onion (chopped)	- 150 g
Green chillies (chopped)	- 50 g
Curry leaves	- 20 g
Coriander leaves	- 20 g
Asafoetida	- 20 g
Mustard seed	- 20 g
Black gram dhal	- 20 g
Oil	- 100 ml
Salt	- 20 g
Water	- as required



METHOD

- 🍴 Add required quantity of water to the barnyard millet flour and mix thoroughly without lumps.
- 🍴 Season the ingredients and add to the barnyard millet flour mix.
- 🍴 Boil the mix with continuous stirring till it reaches a thick dough consistency.
- 🍴 Form the dough into oval shapes and steam cook for 15-20 minutes in *idli* cooker.
- 🍴 Serve hot.

Nutrient content (Per 100g)

Carbohydrate	-	44.87 g
Protein	-	5.29 g
Fat	-	12.3 g
Fiber	-	6.6 g
Calcium	-	66.5 mg
Phosphorous	-	206 mg
Iron	-	4.48 mg
Niacin	-	2.83 mg

RIBBON PAKODA

INGREDIENTS

Barnyard millet flour	-	900 g
Butter	-	50 g
Chilli powder	-	30 g
Sesame seeds	-	20 g
Salt	-	20 g
Water	-	as required
Oil	-	for frying



METHOD

- ✿ Add all the ingredients to the flour and mix it thoroughly.
- ✿ Prepare the dough by adding water.
- ✿ Extrude the dough in a hand extruder and deep fry in hot oil till they turn into golden brown colour.
- ✿ Allow it to cool and pack in air tight container.

Nutrient content (Per 100g)

Carbohydrate	-	60.4 g
Protein	-	6.43 g
Fat	-	7.09 g
Fiber	-	9.79 g
Calcium	-	51.8 mg
Phosphorous	-	274 mg
Iron	-	4.76 mg
Niacin	-	4.16 mg

IDIAPPAM

INGREDIENTS

Barnyard millet flour	-	500 g
Sugar	-	250 g
Coconut milk	-	250 ml
Salt	-	10 g
Water	-	as required



METHOD

- ✿ Steam the barnyard millet flour for five minutes.
- ✿ Blend steamed flour with salt and water thoroughly and extrude in idiappam machine.
- ✿ Steam the extruded dough for 20-25 minutes
- ✿ Serve hot with coconut milk and sugar.

Nutrient content (Per 100g)

Carbohydrate	-	60.58 g
Protein	-	3.98 g
Fat	-	1.14 g
Fiber	-	4.9 g
Calcium	-	16.8 mg
Phosphorous	-	175 mg
Iron	-	2.94 mg
Niacin	-	2.25 mg

ROTTI

INGREDIENTS

Barnyard millet flour	-	400 g
Raw rice flour	-	200 g
Onion (chopped)	-	150 g
Green chillies (chopped)	-	70 g
Asafoetida	-	30 g
Cumin seeds	-	30 g
Curry leaves	-	20 g
Oil	-	100 ml
Salt	-	20 g
Water	-	as required



METHOD

- ✿ Mix barnyard millet flour and rice flour thoroughly.
- ✿ Add other ingredients with required amount of water and knead to a thick dough consistency.
- ✿ Flatten the dough on dosa plate and cook with oil.
- ✿ Serve it hot.

Nutrient content (Per 100g)

Carbohydrate	-	23.4 g
Protein	-	5.12 g
Fat	-	11.5 g
Fiber	-	5.12 g
Calcium	-	87.8 mg
Phosphorous	-	176.5 mg
Iron	-	4.18 mg
Niacin	-	2.33 mg

PAKODA

INGREDIENTS

Barnyard millet flour	-	750 g
Onion (chopped)	-	150 g
Green chillies (chopped)	-	50 g
Cumin seeds	-	30 g
Curry leaves	-	20 g
Salt	-	20 g
Water	-	as required
Oil	-	for frying



METHOD

- ✿ Add all the ingredients and water to the flour and make it into thick dough.
- ✿ Deep fry the dough in hot oil in different shapes.
- ✿ Serve hot.

Nutrient content (Per 100g)

Carbohydrate	-	49.4 g
Protein	-	5.44 g
Fat	-	2.06 g
Fiber	-	7.78 g
Calcium	-	70.5 mg
Phosphorous	-	225 mg
Iron	-	4.27 mg
Niacin	-	3.19 mg

SNACKS

VADAI

INGREDIENTS

Barnyard millet rice	-	500 g
Bengal gram dhal	-	250 g
Onion (chopped)	-	150 g
Green chillies (chopped)	-	80 g
Curry leaves	-	20 g
Salt	-	as required
Oil	-	for frying



METHOD

- 🍴 Soak barnyard millet rice and bengal gram dhal for 4 hours and grind coarsely to thick consistency.
- 🍴 Mix all the ingredients into the batter.
- 🍴 Form the mixture into round shapes.
- 🍴 Deep fry the dough in hot oil till they turn to golden brown colour.
- 🍴 Serve hot with chutney.

Nutrient content (Per 100g)

Carbohydrate	-	51.2 g
Protein	-	8.92 g
Fat	-	2.59 g
Fiber	-	5.96 g
Calcium	-	49.0 mg
Phosphorous	-	239 mg
Iron	-	4.38 mg
Niacin	-	2.89 mg

PUTTU

INGREDIENTS

Barnyard millet flour	-	600 g
Jaggery	-	200 g
Shredded coconut	-	200 g
Salt	-	20 g



METHOD

- 🍴 Add required amount of water and salt to barnyard millet flour and mix it thoroughly without lumps.
- 🍴 Steam the flour for 20 -25 minutes.
- 🍴 Add sugar and shredded coconut.
- 🍴 Serve it hot.

Nutrient content (Per 100g)

Carbohydrate	-	60.9 g
Protein	-	4.7 g
Fat	-	9.66 g
Fiber	-	6.6 g
Calcium	-	30.0 mg
Phosphorous	-	224 mg
Iron	-	3.84 mg
Niacin	-	2.68 mg

UPPMA

INGREDIENTS

Barnyard millet rava	-	600 g
Onion (chopped)	-	200 g
Green chillies (chopped)	-	50 g
Oil	-	80 ml
Curry leaves	-	20 g
Mustard seed	-	10 g
Black gram dhal	-	20 g
Bengal gram dhal	-	20 g
Water	-	4000 ml
Salt	-	as required



METHOD

- ✿ Grind barnyard millet rice into grits (rava).
- ✿ Roast the rava till it becomes light brown.
- ✿ Fry all the ingredients except rava with oil.
- ✿ Add water, salt and allow it to boil.
- ✿ Add roasted rava slowly with continuous stirring.
- ✿ Cook it for 15-20 minutes.
- ✿ Serve hot with chutney.

Nutrient content (Per 100g)

Carbohydrate	-	45.2 g
Protein	-	5.65 g
Fat	-	9.32 g
Fiber	-	6.55 g
Calcium	-	52.1 mg
Phosphorous	-	213 mg
Iron	-	3.83 mg
Niacin	-	2.89 mg

SWEET ADAI

INGREDIENTS

Barnyard millet flour	-	400 g
Roasted bengal gram flour	-	150 g
Green gram flour	-	150 g
Jaggery	-	300 g
Water	-	as required



METHOD

- ✿ Prepare jaggery syrup with required amount of water.
- ✿ Add barnyard millet flour, roasted bengal gram flour, green gram flour to the syrup, mix thoroughly.
- ✿ Knead the mix to a thick consistency.
- ✿ Flatten the dough on a dosa plate and cook till golden brown colour.
- ✿ Serve it hot.

Nutrient content (Per 100g)

Carbohydrate	-	72.4 g
Protein	-	9.66 g
Fat	-	1.86 g
Fiber	-	4.19 g
Calcium	-	52.0 mg
Phosphorous	-	236 mg
Iron	-	4.81 mg
Niacin	-	2.23 mg

KESARI

INGREDIENTS

Barnyard millet rava	-	300 g
Sugar	-	400 g
Milk	-	100 ml
Ghee	-	100 g
Cashewnuts	-	50 g
Raisins	-	50 g
Water	-	2500 ml
Lemon yellow colour	-	as required



METHOD

- 🔥 Heat ghee in a pan, add barnyard millet rava and fry till it turns light brown.
- 🔥 Add sugar, milk and a pinch of required colour to water and allow it to boil for 5-10 minutes.
- 🔥 Add barnyard millet rava to the boiling water with continuous stirring and cook for 15 to 20 minutes.
- 🔥 Decorate with cashew nuts and dry fruits and serve it hot.

Nutrient content (Per 100g)

Carbohydrate	-	64.7 g
Protein	-	11.6 g
Fat	-	13.5 g
Fiber	-	3.06 g
Calcium	-	31.8 mg
Phosphorous	-	121 mg
Iron	-	2.3 mg
Niacin	-	1.35 mg

ADAI

INGREDIENTS

Barnyard millet rice	-	400 g
Red gram dhal	-	150 g
Green gram dhal	-	100 g
Parboiled rice	-	100 g
Chilli powder	-	30 g
Cumin seeds	-	30 g
Asafoetida	-	20 g
Curry leaves	-	20 g
Oil	-	150 ml
Salt	-	as required



METHOD

- 🔥 Soak barnyard millet rice, red gram dhal, black gram dhal and parboiled rice for 2 hours.
- 🔥 Grind the soaked materials into coarse batter.
- 🔥 Add red chilli powder, asafoetida, curry leaves, cumin seeds and salt to the batter and mix it thoroughly.
- 🔥 Apply oil on the dosa plate and spread the adai batter and cook.
- 🔥 Serve hot with chutney.

Nutrient content (Per 100g)

Carbohydrate	-	62.05 g
Protein	-	12.0 g
Fat	-	12.3 g
Fiber	-	6.75 g
Calcium	-	100 mg
Phosphorous	-	289 mg
Iron	-	4.83 mg
Niacin	-	3.7 mg

CHAPATHI

INGREDIENTS

- Barnyard millet flour - 450 g
- Wheat flour - 450 g
- Salt - 20 g
- Oil - 100 ml
- Water - as required



METHOD

- ✿ Add salt and water to the flour and knead it into soft dough.
- ✿ Make round ball (50 g) and roll to flat chapathi.
- ✿ Toast the chapathi on a preheated pan.
- ✿ Serve hot with any curry or chutney.

Nutrient content (Per 100g)

Carbohydrate	-	53.96 g
Protein	-	7.32 g
Fat	-	11.5 g
Fiber	-	4.68 g
Calcium	-	27.2 mg
Phosphorous	-	254 mg
Iron	-	3.96 mg
Niacin	-	3.4 mg

ADHIRASAM

INGREDIENTS

- Barnyard millet flour - 250
- Raw rice flour - 250
- Jaggery - 500
- Cardamom powder - as required
- Dry ginger - as required
- Water - as required
- Oil - for frying



METHOD

- ✿ Mix barnyard millet flour and raw rice flour thoroughly.
- ✿ Sprinkle little water, mix it thoroughly and keep it for four hours.
- ✿ Mix jaggery with required water and heat to syrup consistency.
- ✿ Add jaggery syrup and stir the flour to make a smooth dough.
- ✿ Allow it to ferment overnight at room temperature.
- ✿ Flatten the fermented dough on a greased polythene sheet.
- ✿ Deep fry the flattened dough in hot oil for 2-3 minutes till it turns to golden brown.

Nutrient content (Per 100g)

Carbohydrate	-	83.43 g
Protein	-	3.45 g
Fat	-	0.73 g
Fiber	-	2.5 g
Calcium	-	47.5 mg
Phosphorous	-	130 mg
Iron	-	17.4 mg
Niacin	-	1.53 mg

KHEER

INGREDIENTS

Barnyard millet rice	-	300 g
Jaggery	-	300 g
Cardamom powder	-	20 g
Cashewnuts	-	50 g
Raisins	-	50 g
Ghee	-	80 g
Milk	-	200 ml
Water	-	3500 ml



METHOD

- ☞ Boil milk and water for 10 minutes.
- ☞ Add barnyard millet rice, jaggery and cook for 10 – 15 minutes.
- ☞ Fry cashewnuts and raisins in ghee.
- ☞ Add cardamom powder, fried cashewnuts and raisins to the kheer.

Nutrient content (Per 100g)

Carbohydrate	-	54.3 g
Protein	-	10.8 g
Fat	-	11.3 g
Fiber	-	3.46 g
Calcium	-	53.6 mg
Phosphorous	-	136 mg
Iron	-	3.12 mg
Niacin	-	1.37 mg

KHAKRA

INGREDIENTS

Barnyard millet flour	-	500 g
Wheat flour	-	500 g
Salt	-	20 g
Water	-	400 ml



METHOD

- ☞ Add salt and water to the flour and knead into soft dough.
- ☞ Make round balls (30 g) and roll into thin chapatti.
- ☞ Toast the khakra on a preheated pan, press with a dry cloth and turn frequently.
- ☞ Serve hot with channa masala or dal.

Nutrient content (Per 100g)

Carbohydrate	-	53.96 g
Protein	-	7.32 g
Fat	-	11.5 g
Fiber	-	4.68 g
Calcium	-	27.2 mg
Phosphorous	-	254 mg
Iron	-	3.96 mg
Niacin	-	3.4 mg

SWEETS

HALWA

INGREDIENTS

Barnyard millet flour	-	200 g
Wheat flour	-	100 g
Powdered sugar	-	350 g
Ghee	-	300 g
Cashewnuts	-	50 g
Water	-	2000 ml



METHOD

- 🍳 Fry barnyard millet flour and wheat flour with half the amount of ghee.
- 🍳 Add fried flour to the boiled milk and water with continuous stirring to avoid lumps.
- 🍳 When it solidifies, add sugar, ghee and cook to the required consistency.
- 🍳 Add roasted cashew nuts and raisins when the solid mass leaves the sides of the pan.
- 🍳 Spread on a greased tray and cut into pieces.

Nutrient content (Per 100g)

Carbohydrate	-	55.95 g
Protein	-	3.55 g
Fat	-	32.96 g
Fiber	-	2.22 g
Calcium	-	15.5 mg
Phosphorous	-	124 mg
Iron	-	1.83 mg
Niacin	-	1.33 mg

SWEET KOLUKATTAI

INGREDIENTS

Barnyard millet flour	-	600 g
Jaggery	-	200 g
Shredded coconut	-	100 g
Roasted bengal gram dhal	-	50 g
Sesame seeds	-	50 g
Cardamom	-	as required
Salt	-	as required



METHOD

- 🍳 Add required amount of water and salt to the barnyard millet flour and mix it thoroughly.
- 🍳 Prepare filling by mixing shredded coconut, jaggery and cardamom powder.
- 🍳 Flatten the dough on a plantain leaf.
- 🍳 Fill the mixture on the dough and fold it.
- 🍳 Steam cook the filled dough in *idli* cooker for 15 minutes.
- 🍳 Serve it hot.

Nutrient content (Per 100g)

Carbohydrate	-	65.04 g
Protein	-	6.61 g
Fat	-	8.0 g
Fiber	-	6.93 g
Calcium	-	105 mg
Phosphorous	-	189 mg
Iron	-	4.9 mg
Niacin	-	3.1 mg