



# Moringa oleifera in weaning foods in the Lower River Division of The Gambia.

## 1. An assessment of weaning foods under current practices

By

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### INTRODUCTION

- ❖ Towards the middle of the first year, breast milk not sufficient to support the growing infant.
- ❖ The nutrient gap that opens must be filled by the introduction of complementary foods
- ❖ The most commonly used complementary food in The Gambia is "ogi", a cereal-based porridge, which cannot meet the nutritional requirements of the growing child thus leading to malnutrition.
- ❖ In The Gambia, childhood nutrition usually peaks between the ages of 6 to 24 months.
- A Multi Indicator Cluster Survey conducted in 2000 found 17% stunting and 19% underweight among the children under five years of age.
- ❖ Moringa has a considerable potential as a source of protein and some other micro-nutrients to supplement complementary foods.
- ❖ An advantage can be taken of the available indigenous knowledge to strengthen a purpose-oriented incorporation of the protein-rich Moringa leaves in weaning foods.
- ❖ Hence, the current attempts to formulate MLMs for incorporation into The Gambian traditional weaning foods using Moringa leaf powder, fish, shrimps, oyster and taste enhancers in various combinations.
- ❖ However, the problem of heavy contamination of the traditional weaning foods by disease-causing organisms, especially diarrhoea pathogens due to poor environmental sanitation and personal hygiene needs to be investigated and addressed.

### OBJECTIVE

To determine the microbiological status of the complementary foods locally prepared by Gambian mothers in the Lower River Division.

Table 1: Total Bacterial Counts of weaning foods from 10 villages in The Gambia

Date	MD	KW	MS	JF	MA	JP	JN	KA	JB	PK
13/09	++	++	++	+	++					
26/09						- (30)	-	-(18)		-(28)
11/10	+(27) (144)	++	++	-	-	-	-	-		-
25/10					++	-	-	-	-	-
14/11	++	-	-	-	-					
29/11									+(11) (27)	-
14/12	++	-	-	+(6) (26)	-(30)					
27/12										-(25)

### MATERIALS AND METHODS

- Study period
- ❖ Four months: September to December, 2005.
- Study sites
- ❖ Ten villages in the LRD.
- Collection of food samples
- ❖ 2 samples (20g each) were collected from each village in a month (20 samples/month and 80 samples in all)
- ❖ Samples were kept on ice in a cooler and transported to the ITC laboratory and stored in the refrigerator and analyzed within 24hrs after collection.
- Total Bacterial Count
- ❖ Direct counts of bacterial suspensions were carried out using Thomas counting chamber procedures.
- Bacterial isolation and identification methods
- ❖ Each food sample was homogenized.
- ❖ Standard methods were used for the isolation and confirmation of *Salmonella*, *E. coli* and *Clostridia*.

### RESULTS

The total bacterial counts and incidences of *E.coli* contaminations are as shown in Tables 1 and 2 respectively. Total bacterial counts were high in 6 out of the ten villages. There was no risk of *Salmonella* agent in all the villages. One sample from one village was positive for *Clostridia spp.* The greatest concern was for the prevalence of *E.coli* observed in 5 of the ten villages.

Table 2: Incidence of *E. coli* contamination of weaning foods from 10 villages in The Gambia

Date	MD	KW	MS	JF	MA	JP	JN	KA	JB	PK
13/09	++	-	++	-	++					
26/09						+(224) (7)	-	-	-	-
11/10	++(120)	++(259)	++	-	++(85) (116)					
25/10						-	-	-	-(22)	-
14/11	++(176) (88)	-	-	-	-					
29/11										
14/12	++(11)	-	-	-	-					
27/12										

#### KEY TO SYMBOLS

- += Presence
- ++=Heavy presence
- = Absence
- MD: Manduar
- KW: Kwinnela
- MS: Medina Sancha
- JF: Jiffarong
- MA: Medina Anglais
- JP: Japinneh
- JN: Jenoi
- KA: Kaiaf
- JB: Jongoro Ba
- PK: Pakali Ba

### CONCLUSIONS & RECOMMENDATIONS

- ❖ Relative to earlier findings reported about two decades ago in The Gambia, microbial contamination of weaning foods has been minimal although *E. coli* and post preparation contamination remain a cause for concern.
- ❖ The present findings indicate a higher level of domestic hygiene following series of interventions by various development and health agencies
- ❖ A clear reduction of the infection rates from bacterial contamination of weaning foods with a resultant reversal in the earlier trend of child mortality and growth rates are to be expected.
- ❖ The inclusion of nutrient-dense supplements like *Moringa oleifera* offers pragmatic approaches to nutrient fortification of locally available weaning foods and will contribute significantly to the reduction of post-weaning malnutrition
- ❖ The cutting edge of Moringa is its robust applicability in both human and animal nutrition schemes

### OUTLOOK

- The next steps are:
- ❖ Some variants of MLM will be formulated using Moringa leaf powder, fish, shrimps, oyster and taste enhancers in various combinations
- ❖ A test pap will be prepared in the ITC laboratory and the MLMs will be added in various proportions.
- ❖ The experimental paps will be analyzed to determine the effects of the MLMs on their nutritional values.
- ❖ An evaluation programme will be carried out with malnourished children over a period of 12 months.
- ❖ To make the programme more sustainable, unemployed youths will be trained and encouraged to grow, process and market the MLMs

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