



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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