

MICROBIAL CONTAMINATION OF WEANING FOODS: A RISK FACTOR FOR DIARRHEA AND SUBSEQUENT MALNUTRITION IN CHILDREN IN OSOGBO, NIGERIA

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ABSTRACT

Children in the world die in thousand annually from diarrheal diseases; hundreds of millions suffer from frequent episodes of diarrhea and consequent impairment of nutritional status. Thus, the aim of the study was to assess the microbial contamination of foods used in weaning as well as the mothers' hygienic practices in food preparation for the children in Osogbo, Nigeria. A weaning foods samples were obtained five areas within Osogbo Local Government Area. An experimental research design was employed. The samples were analysed for microbial load at the microbiology research laboratory, Federal University of Technology, Akure. The experiment involved the use of standard microbiological methods for isolation and identification of existing microorganisms in food samples collected. The results shows the mean bacteria count was $35 \times 10^3 \pm 5 \times 10^2$ cfu/ml and the mean fungal count $1.3 \times 10^3 \pm 1.2 \times 10^2$ cfu/ml. These values exceed the standards for food safety limits as set by the Food and Agricultural Organisation (Bacterial load $\leq 10,000$ cfu/ml; Fungal load ≤ 700 cfu/ml). A total of 30 microorganisms comprising 16 bacterial species, and 14 fungal species (4 yeasts species and 10 mould species) were isolated. The organisms includes bacteria, moulds as well as yeasts. The bacterial species are *Acinetobacter calcaecelicus*, *Bacillus coagulans*, *Bacillus subtilis*, *Micrococcus luteus*, *Aerococcus viridans*, *Branhamella catarrhalis*, *Staphylococcus aureus*, *Corynebacterium xerosis*, *Bacillus cereus*, *Lactobacillus lactis*, *Streptococcus lactis*, *Lactobacillus fermentum*, *Lactobacillus plantarum*, *Zymomonas mobilis*, *Thiocapsa rosea* and *Thiocapsa roscoopersicina*, the yeasts species isolated are *Candida vini*, *Saccharomyces cerevisiae* and *Klebsiella apiculata*, the moulds species found are *Candida albiclum*, *Penicillium italicum*, *Apergillus falvus*, *Apergillus repens*, *Articulospora inflata*, *Pleurothecium recurvatum*, *Pseudotorula hoterospora*, *varicosporium inflata* and *Gonatobotryum sapiculatum*. The results further showed only that 20% of the subjects got their water supply from borehole in which water ran through pipe to supply household. The rest 80% got their water from hygienically doubtful sources: 40% got water from community (open) well where only one water drawer was share by all; 20% from personal household (covered) well; rest 20% got water from municipal water which they stored in big containers at home (to last up to 7 to 10 days). The assessment of the microbial load of the water used to prepare food were found to contain pathogenic microorganisms. The assessment of the microbial load of the water used to prepare food were found to contain pathogenic microorganisms. The environment where food were being prepared was also found to have contributed to food contamination. From the study, 60% of the houses used pit laterines; only 20% household had functional water closet system. In 40% households, there were physical presence of flies in the latrine area and visible stool around the latrine. Evidence of food contamination was revealed by the percentage of the children that had gastrointestinal ailments: 80% of the subjects said they usually visit health facilities within Osogbo four to six times per year on account of diarrheal diseases affecting their children. Similarly, 60% of them have lost babies in the past as a results of unresolved gastrointestinal ailments; and 40% still had family friends and relations having their children under hospital admission due to various childhood diseases. It was recommended that government should provide portable water on daily basis to the populace through the provision of pipe borne municipal water. It was also recommended that the

government should enforce the digging of at least a ventilated improved pit latrine in every household to curtail the spread of faeco-oral infection facilitated by flies.

KEYWORDS: Microbial Contamination of Weaning Foods